



US Army Corps
of Engineers

Walla Walla District

1992 Reservoir Drawdown Test

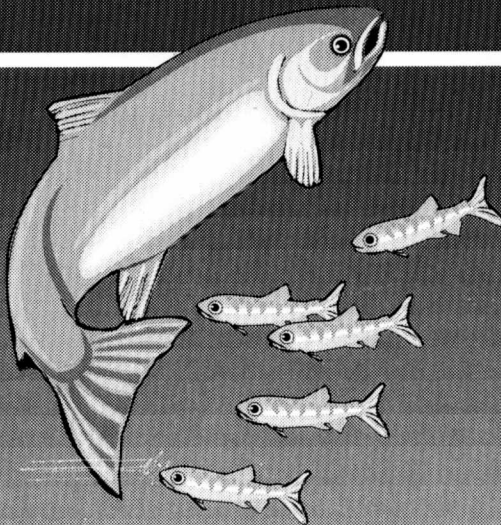
Lower Granite and Little Goose Dams

Appendix H

Lewiston Levee Pumping Plants

Appendix I

Road and Railroad Embankments



Appendix J

Emergency Equipment and Materials

December 1993

PLANNING
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APPENDIX H
LEWISTON LEVEE PUMPING PLANTS
1992 Reservoir Drawdown Test
Lower Granite and Little Goose Dams

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Walla Walla District
U.S. Army Corps of Engineers

APPENDIX H

TEST DRAWDOWN 1992 OF LITTLE GOOSE AND LOWER GRANITE DAMS LEWISTON LEVEES PUMPING PLANTS

1. INTRODUCTION.

In accordance with recommendations contained in the Record of Decision for the 1992 Options Analysis Document/Environmental Impact Statement for the Columbia River Salmon Flow Measures, a test drawdown of Little Goose and Lower Granite Reservoirs was conducted during the period of 1 to 31 March 1992. The drawdown test enabled the Corps of Engineers to evaluate the effects and feasibility of conducting reduced reservoir water levels on a regular basis. The lowering of water levels within the reservoirs theoretically would increase instream velocities that would potentially move the salmon smolts downstream at a faster rate, which would theoretically increase their survival.

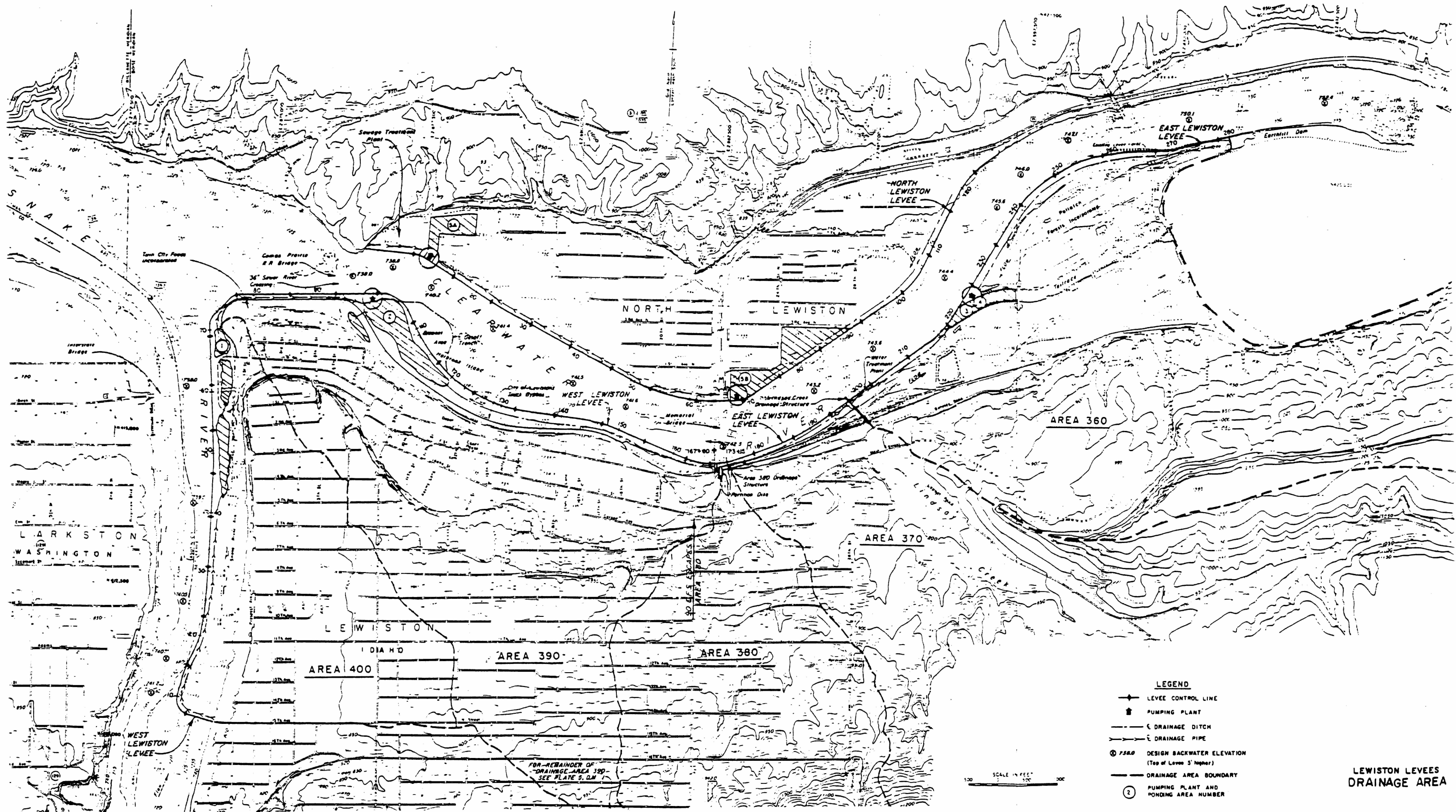
All drainage behind the North and West Lewiston levees is collected by ponding and then pumped over the levees into the reservoir. Drainage in the East Lewiston area is ponded and pumped over the levees, except from Lindsay Creek and drainage area 380 which flows directly into the reservoir by way of controlled drainage structures. Plate 1 shows the location of the pumping plants and drainage structures. Drainage includes interior drainage and storm runoff behind the levees. Pumping plants are monitored normally once per week. Readings of average water pumped for a given time period are measured. During the drawdown the pumping plants were monitored twice weekly.

2. MONITORING RESULTS.

The West levee pumping plant volume remained at similar levels as the previous year, dipping to a low value of one cubic feet per second (cfs) mid-month, then returning to normal values by the end of the month. The East levee pumping plant volume remained at zero until the end of the month where it rose to 0.69 cfs. This volume probably relates to localized activities at Potlach Corporation. The North A pumping plant volumes were slightly higher than the previous year, dropping continuously until the end of the month, then rising back to pre-drawdown levels. The North B pumping plant volumes remained at similar volumes from the previous year showing a slight dip towards the middle of the month. Plates 2 through 5 shown graphs of the pumping plant volumes with respect to reservoir levels.

The West and North A pumping plants showed similar patterns to the reservoir levels during the drawdown period. The North B pumping plant showed a similar trend, though not as strong. These patterns are attributed to the lowering groundwater levels, hence the reduction in interior drainage behind the levees. The West and North A pumping plants show more pronounced patterns due

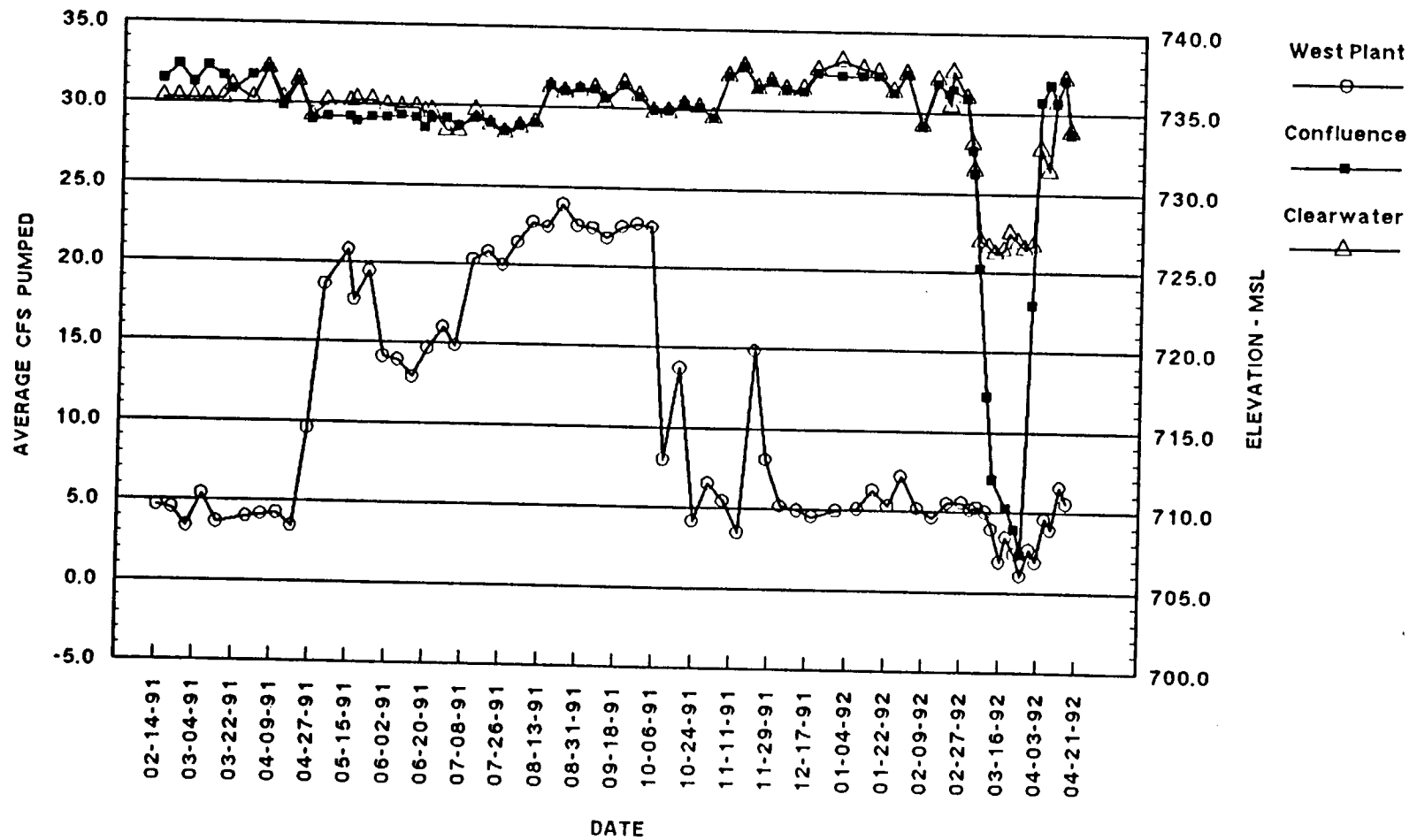
to the lower water levels experienced at the confluence compared to further upstream.



LOWER GRANITE LEVEES – DRAWDOWN 1992

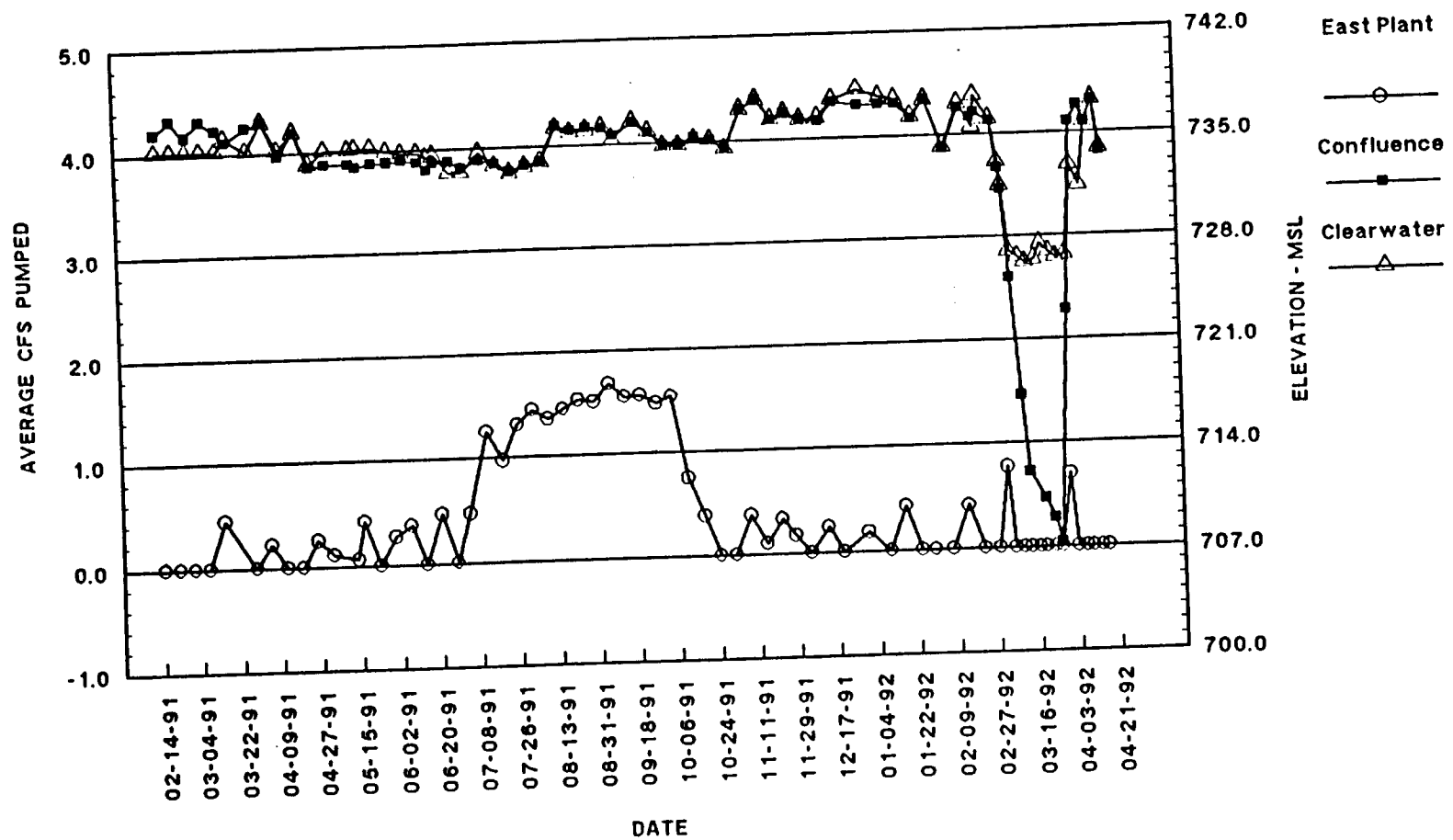
West Pumping Plant

PLATE 2



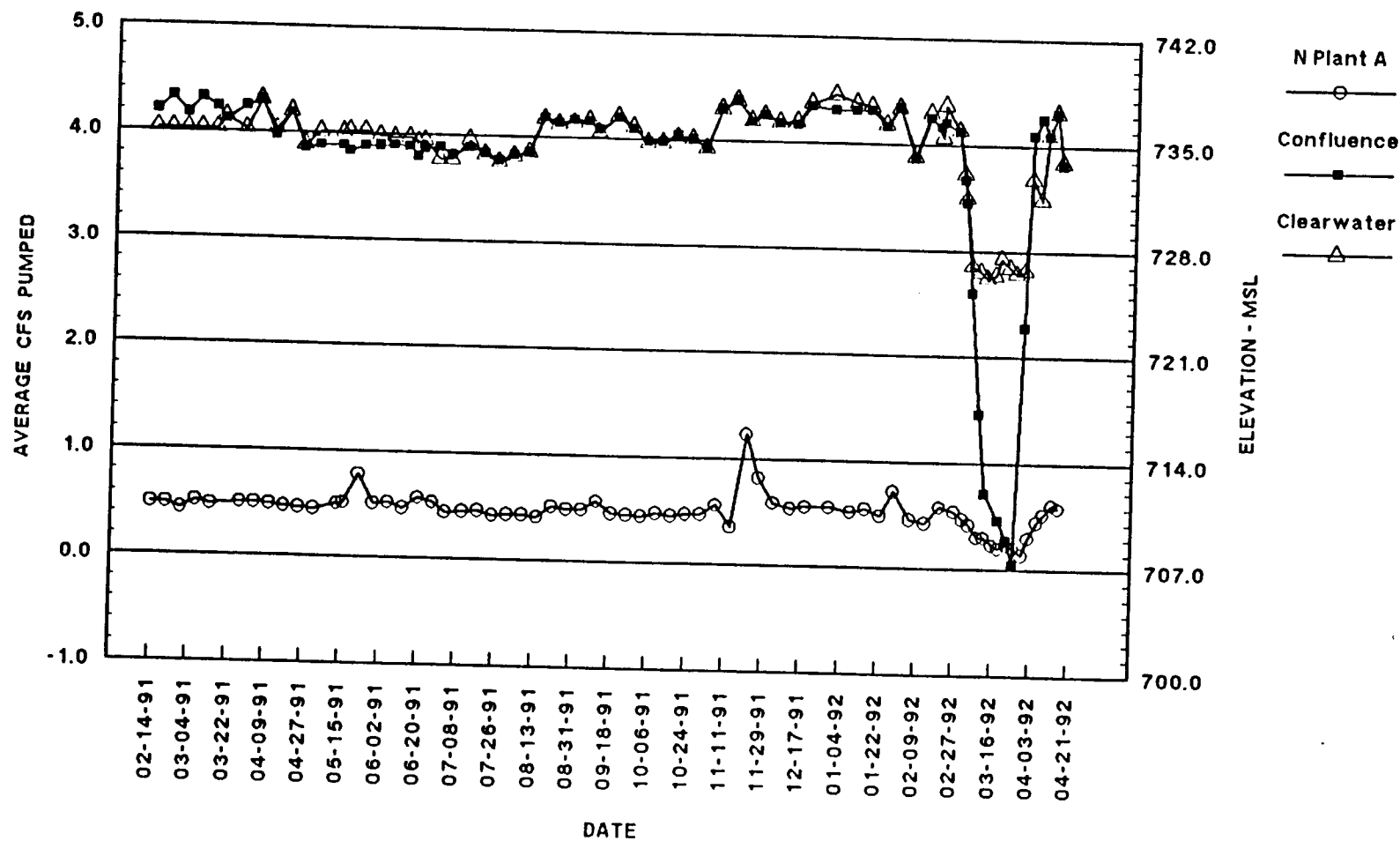
LOWER GRANITE LEVEES - DRAWDOWN 1992

East Pumping Plant



LOWER GRANITE LEVEES - DRAWDOWN 1992

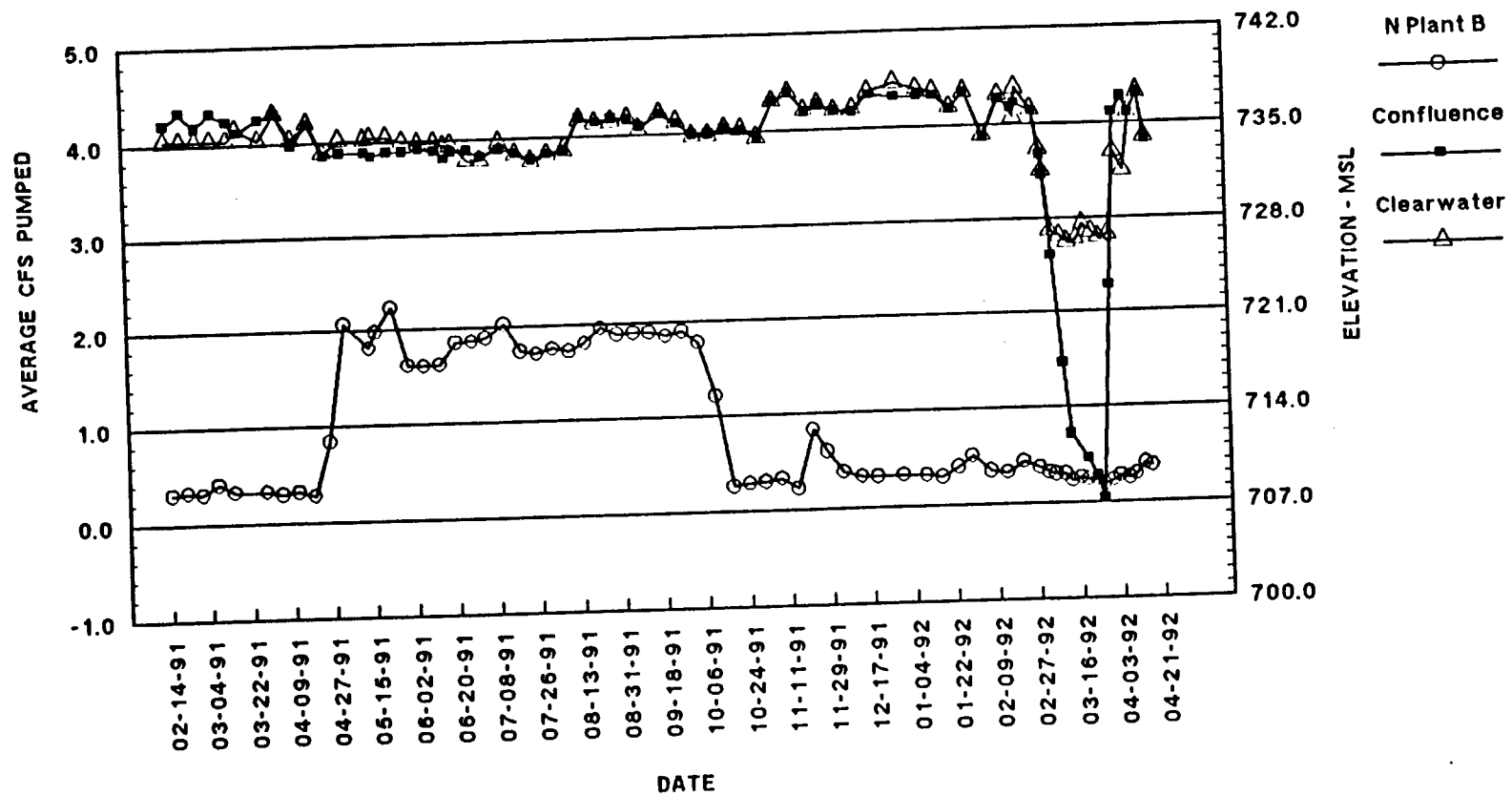
North A Pumping Plant



LOWER GRANITE LEVEES - DRAWDOWN 1992

North B Pumping Plant

PLATE 5



APPENDIX I
ROAD AND RAILROAD EMBANKMENTS
1992 Reservoir Drawdown Test
Lower Granite and Little Goose Dams

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APPENDIX I

TEST DRAWDOWN 1992 OF LITTLE GOOSE AND LOWER GRANITE DAMS ROAD AND RAILROAD EMBANKMENTS

1. INTRODUCTION.

In accordance with recommendations contained in the Record of Decision for the 1992 Options Analysis Document/Environmental Impact Statement for the Columbia River Salmon Flow Measures, a test drawdown of Little Goose and Lower Granite Reservoirs was conducted during the period of 1 to 31 March 1992. The drawdown test enabled the Corps of Engineers to evaluate the effects and feasibility of conducting reduced reservoir water levels on a regular basis. The lowering of water levels within the reservoirs theoretically would increase instream velocities that would potentially move salmon smolts downstream at a faster rate, which would theoretically increase their survival.

The Camas Prairie Railroad Company (CPRR) embankment along the north shore of both the Lower Granite and Little Goose reservoirs, and Whitman County Road 9000 embankment from Steptoe Canyon to Wawawai Canyon along the north shore of the Lower Granite reservoir, were identified as potential problem areas during the drawdown activity, see plate 1. These embankments were designed with riprap armoring limited to normal pool level fluctuations, below which the slopes are protected by rockfill. The fills were built of random material varying from granular to fine grained soils. These embankments were not designed for rapid reservoir drawdown. As-built drawings of road and railroad embankments were evaluated prior to the drawdown to identify potential problem areas. Plate 2 shows typical sections of road and railroad embankments. Plates 3 and 4 are material descriptions taken from the specifications for the construction of the embankments.

Several potential problems were identified and monitored for visual signs of stress during the drawdown. Many ponds and embayments are situated between road and railroad embankments and the surrounding canyons. It was uncertain if culverts in these ponds could provide sufficient drainage during drawdown. It was also uncertain if the embayments would trap water after the reservoir level dropped below the riprap placed beneath bridges. Adequate seepage from the embankments was also a concern due to the finer grained materials believed to compose portions of the embankments. The road and railroad embankments were also determined to be vulnerable to erosion as a result of wave action.

The drawdown rate was based on the road and railroad fills slope stability. These fills are susceptible to failure if the drawdown rate exceeds the ability of the materials to drain. The ability of the materials to drain is related to their grain size

distribution. The more granular materials will drain at a faster rate than the finer grained materials. The slope load factor is increased by in increased slope height and the additional weight of the groundwater held in the finer grained materials. As the reservoir is lowered, the saturated fill material loses the stabilizing effect of the weight of the reservoir. These combined effects reduce the safety factor of the embankment and the material becomes unstable resulting in slope movement. A too rapid drawdown rate would endanger these fills, while a slow conservative rate would make a very long and unacceptable test period. A two-foot per day rate was selected as the best compromise.

2. MONITORING DURING DRAWDOWN.

Due to the extent and remoteness of the road and railroad embankments, daily aerial surveys by helicopter were used to monitor the integrity of embankments. Problem areas identified by air were further investigated in detail on the ground.

CPRR also maintained a monitoring program during the drawdown. A copy of their findings can be found in Appendix I1. Whitman County monitored the road during the drawdown also.

3. EMBANKMENT REACTION TO DRAWDOWN.

During the drawdown, engineered fill embankments such as the railroad and road embankments suffered no major structural failures. Whitman County Road 9000 embankment was the most adversely effected during the drawdown. Thirty-three areas with extensive movement as evidenced by cracking, depressed and raised areas within the road, and guardrail movement were noted during drawdown and re-impoundment. A survey of the cracks on County Road 9000 is given in Appendix I2. The following observations were made concerning the cracks:

- (1) Most cracks were longitudinal with a few diagonal and transverse to the road alignment. Some major cracks extended from the road into the railroad ballast.
- (2) Movement was primarily horizontal toward the reservoir and to a lesser extent vertical with the road moving down toward the river. Settlement up to 18-inches was noted.
- (3) Crack widths varied along crack length becoming wider and longer throughout reimpoundment. Surface widths varied as much as 1/8 to 15 inches. Larger cracks extended over 25 feet deep into the subgrade. The worst crack was 1-foot in width for 5-feet in length.
- (4) Most of the cracks were concentrated in an eleven mile reach of the road.
- (5) Vertical and horizontal movement of the guardrails was

observed.

(6) Some of the wider cracks were filled by washing sand into the crack then covering with cold patch by the County maintenance crews prior to closing the road, before reopening the road, and a third time since the road was reopened.

(7) Minor sloughing was noted in two areas along County Road 9000 however only one slough was located near a disturbed portions of the road. The slough near Castle Rock never fully pulled away from the slope. Toe seepage and boils were noted at this slide.

(8) The road was reopened with reduced speed restrictions.

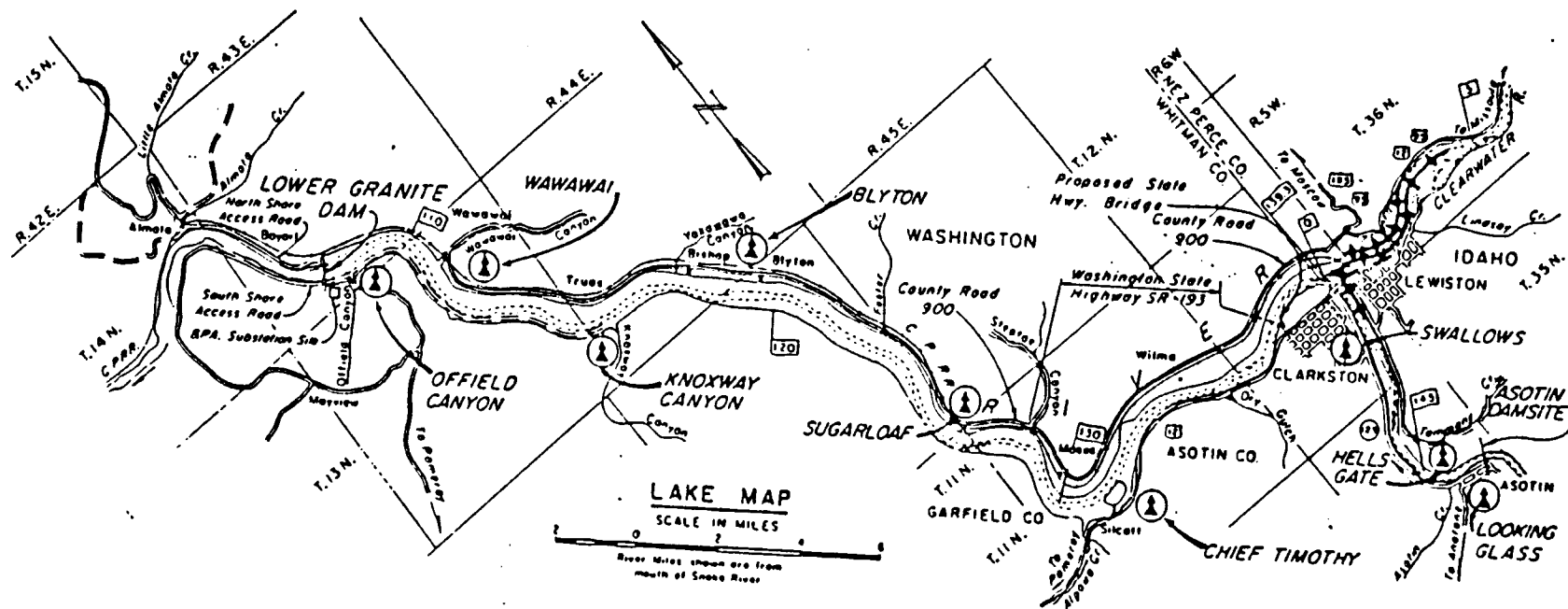
The railroad embankment experienced some movement during the drawdown. Rail operations were not interrupted; however, speed restrictions were issued until tracks could be realigned. The Little Goose portion of the rail went through little distress. Two large pre-drawdown cracks were noted along the Little Goose reservoir. Movement of these cracks during the drawdown was not detected. Repair of the track alignment was made continually during the drawdown. Large cracks developed within the railroad embankment in areas coincident with movement on County Road 9000, but also in areas where no disturbance was detected on the road. Rail traffic increased during the drawdown period according to CPRR.

Cracking on road and railroad embankments may be indicative of settlement or movement along potential failure planes. The cohesionless nature of the road and railroad fills would tend to minimize the potential of consolidation settlement. Furthermore, if the fills were compacted and placed properly, immediate or elastic settlement would be minimal. Some possibilities are that the rock/fill contact is loose and the subsurface rock slope is fairly steep. The presence of an existing soil subgrade below the fill may be inherently weaker than the compacted fill and the increased moist unit weight by loss of buoyancy may have triggered slipping within the subgrade. The tension cracks that developed on the pavement surface along County Road 9000 show some movement of the fill along the rock/fill interface surface. The cracks did not stop growing through drawdown and reimpoundment once the loss of shear strength was initiated.

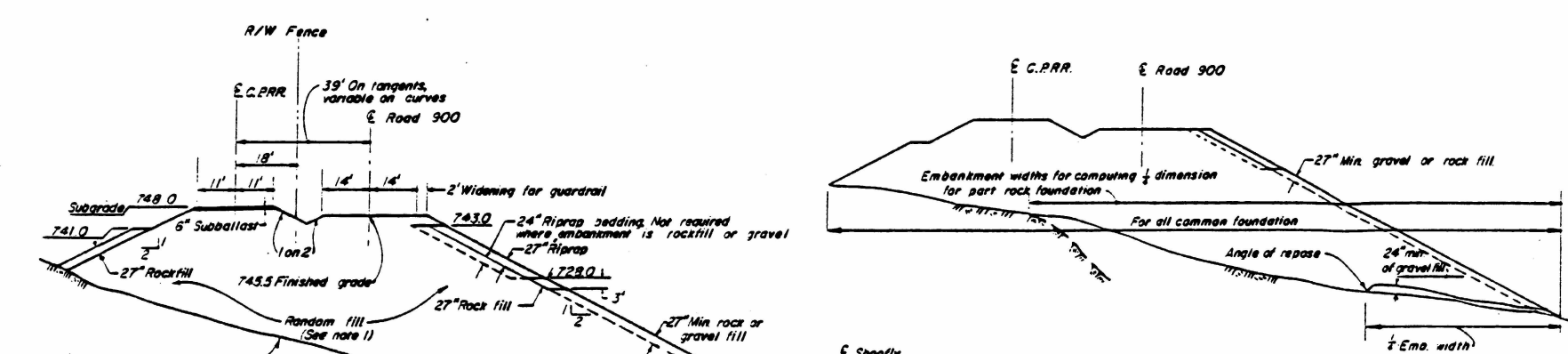
There is reason to believe, based on the reaction of the road and railroad embankments, that if the drawdown is conducted on a continued basis new cracks will develop. Existing cracks even if properly repaired, may resurface if rock/fill interface movement is reinitiated. If the cracks were initiated by settlement, densification may have reduced the potential for future cracking.

As the reservoir level dropped, almost all the ponds along the road and railroad embankments, except for at Buck Canyon,

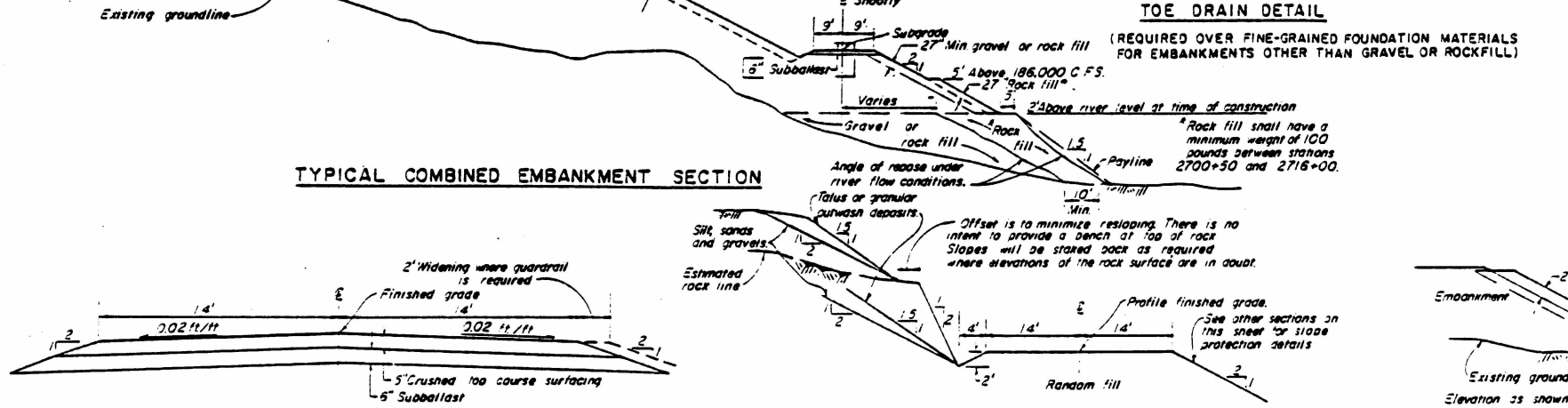
dropped favorably. The pond at Buck Canyon maintained a differential elevation with the reservoir of approximately 12 feet.



LOWER GRANITE LOCK AND DAM
PROJECT LOCATION
VICINITY AND LAKE MAPS

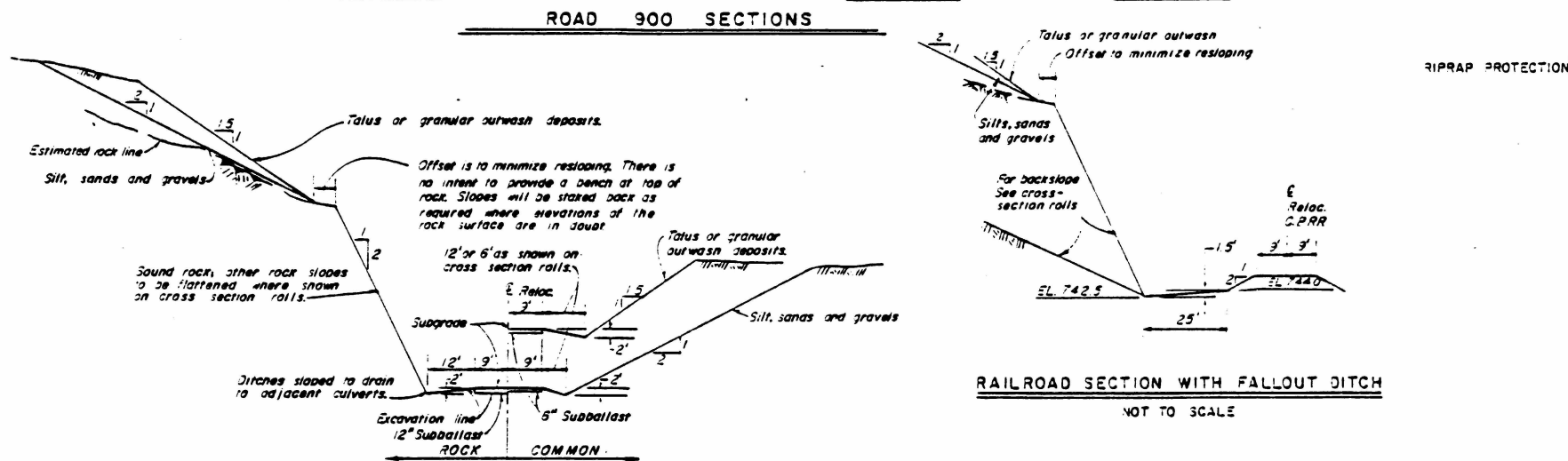


TYPICAL COMBINED EMBANKMENT SECTION



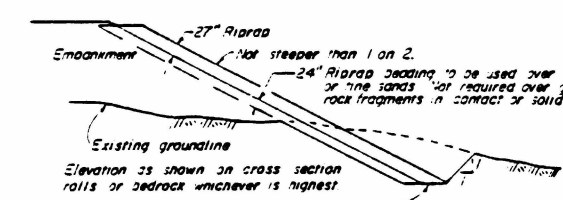
SURFACING SECTION

ROAD 900 SECTIONS



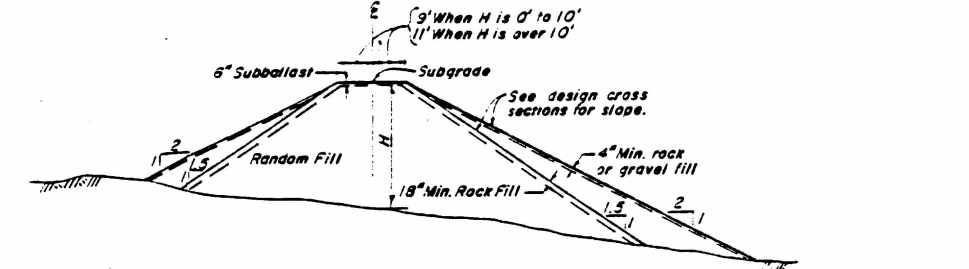
EXCAVATION

EMBANKMENT

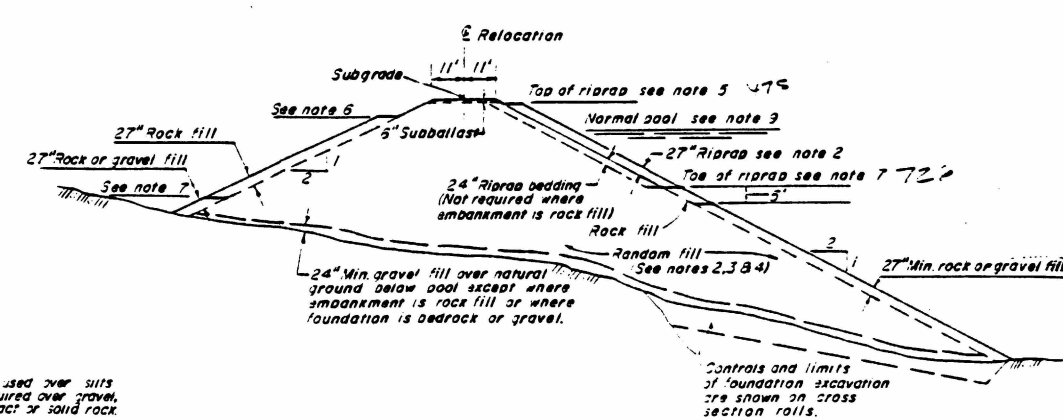


RIPRAP DETAIL
RIPRAP PROTECTION FOR EMBANKMENTS AND NATURAL GROUND

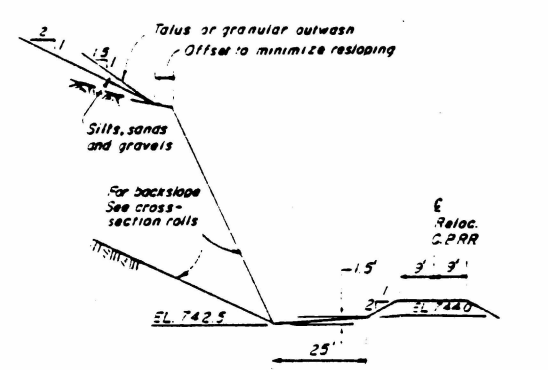
NOT TO SCALE



EMBANKMENTS NOT AFFECTED BY POOL



EMBANKMENTS AFFECTED BY POOL

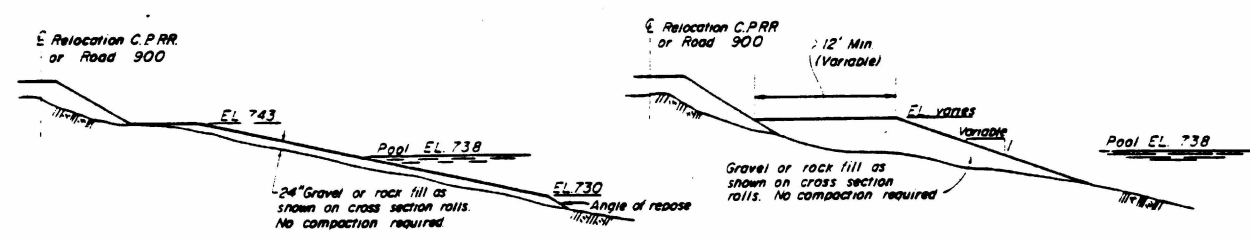


RAILROAD SECTION WITH FALLOUT DITCH

NOT TO SCALE

RAILROAD EXCAVATION DETAILS

NOT TO SCALE



PROTECTION OF NATURAL GROUND FROM WAVE ACTION

- NOTES**
- WHERE FINE-GRAINED MATERIALS ARE PLACED IN EMBANKMENTS BELOW EL. 738 AND ARE PLACED ADJACENT TO MATERIALS OTHER THAN BEDROCK OR FINE-GRAINED MATERIALS THEY SHALL BE COMPLETELY SURROUNDED WITH A MINIMUM OF TWO FEET OF GRAVEL FILL.
 - FILL WITHIN 100 FEET OF BRIDGE ABUTMENTS AND BACKFILL FOR BRIDGE PILING EXCAVATION SHALL CONSIST OF GRAVEL. SEE THE CROSS SECTION ROLLS FOR EXCAVATION LIMITS.
 - ELEVATIONS, SLOPES, DIMENSIONS AND OFFSETS WHICH ARE VARIABLE ARE DETAILED ON THE CROSS SECTION ROLLS.
 - ALL RIPRAP SHALL BE 150 POUND AVERAGE SIZE EXCEPT AT RIPRAP TIE-INS AND BRIDGE ABUTMENTS WHICH SHALL BE 400 POUND AVERAGE SIZE, AND 200 POUNDS BETWEEN RR. STATIONS 3027+15 AND 3031+23.
 - TYPICAL SECTIONS AND DETAILS INDICATE TYPES OF MATERIALS WHICH WILL BE ENCOUNTERED. TYPES OF CONSTRUCTION REQUIRED, AND DESIGN CRITERIA USED TO DEVELOP THE CROSS SECTION ROLLS. TYPICAL SECTIONS AND DETAILS ARE FOR INFORMATIONAL PURPOSES AND TO PROVIDE DATA TO ESTABLISH SLOPE STAKE LOCATIONS. ACTUAL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CROSS SECTION ROLLS AND THE SPECIFICATIONS.
 - SLOPES SHOWN FOR BORROW OR WASTE LIMITS ARE THE STEEPEST ALLOWED AND ELEVATIONS SHOWN ARE THE VERTICAL LIMITS.
 - GRAVEL OR ROCK FILL IS REQUIRED BELOW THE TOP AND WITHIN 100 FEET OF SELECTED CULVERTS AS LISTED ON SHEET 16, DRAWING NO. GDR-1-0-5/71.
 - WHERE SPRINGS ARE ENCOUNTERED IN THE FOUNDATIONS FOR EMBANKMENTS, THEY SHALL BE DRAINED BY PLACING A 20 FOOT WIDE, 2 FOOT THICK GRAVEL BLANKET FROM THE TOP OF THE SPRING TO THE TOE OF THE FILL.
 - USE THE CROSS SECTION ROLLS BETWEEN STATIONS 3020 AND 3031+23 FOR TRANSITION DETAILS OF CO. ROAD FROM RIVERSIDE TO LANDSIDE.

LOWER GRANITE LOCK AND DAM TYPICAL RAILROAD AND ROAD EMBANKMENTS

to heterogeneous deposits of fragmentary rock, gravel and fine-grained material. Generally, materials from the flatter portions of the slopes will be fine-grained materials suitable for random fill while the upper, steeper talus deposits will contain satisfactory material for rock fill. The materials at the base of steep slopes often contain many large boulders. Classifications shown on the drawings indicate the general characteristics of the materials, but do not show the range of materials or all the types of materials which may be encountered. Selection, blending and removal of oversizes will be necessary in some material sources to meet specification requirements. Pockets, lenses, or concentrations of fine grained materials will not be permitted in * embankments unless properly compacted and surrounded on all sides with two feet of gravel fill. Fill materials shall be free of trash, roots, ice, snow, or frozen material. The Government reserves the right to reject embankment materials not meeting specification requirements at any time prior to or after placement and compaction in embankments. Embankment materials listed under 4-11.2 below will be measured and paid for under Item No. 2, "Embankment." All other embankment materials shall be measured and paid for under the applicable bid items.

4-11.2 Definitions of Materials. For the purpose of establishing usage in embankments and requirements for moisture, placement and compaction, materials are defined as follows:

(1) Rockfill shall consist of 36-inch minus, sound, durable rock from solid rock excavation or angular rock from talus deposits. Rockfill shall not contain more than 20 percent by weight passing the 1/2-inch screen of that portion passing a 6-inch screen, except that rockfill in the shoofly between stations 2700+50 and 2716+00 shall have a minimum weight of 100 pounds. (See sheet 19 of the drawings.)

(2) Gravel fill shall consist of sound material from alluvial deposits containing not more than 50 percent by weight passing the No. 4 sieve and not more than 10 percent by weight passing the No. 200 sieve.

(3) Riprap bedding shall consist of gravel fill as specified above except at locations where the embankment is rockfill. At these locations, the bedding shall meet the requirements for rockfill.

(4) Random fill may consist of rock, gravel, sand, or silt, or any combination thereof.

(5) Subballast shall consist of gravel fill conforming to the following gradation requirements:

Sieve Size

3-inch

No. 4

No. 200

Percent by Weight Passing

100

25-50

0-10

4-11.3 Maximum Size. Unless otherwise specified, the maximum size of embankment materials shall not exceed the thickness of the layers in which they are placed.

4-11.4 Sampling and Testing of Materials.

* 4-11.4.1 General. Government personnel will perform testing as necessary to assure compliance with specification requirements. Acceptance testing will be performed immediately subsequent to placement and compaction of the lift of material to be sampled and tested. Government testing will in no way relieve the Contractor of his responsibility to maintain quality control. *

* 4-11.4.2 Sampling. Samples required to determine compliance with specifications shall be taken by the Contractor when and as directed by the Government. The Contractor shall furnish all labor and equipment necessary to take samples at no additional cost to the Government. Sampling will be supervised by the Contracting Officer. All samples shall be of the size directed and obtained from borrow areas, test pits, borings, stockpiles, or from other locations designated. Samples for material tests shall be taken in conformance with ASTM D75-59. *

4-11.4.3 Testing. Tests required to determine compliance with specifications will be performed by the Government at no cost to the Contractor. The Contractor may observe any testing which he deems necessary and will receive a copy of all test results. Sieve analysis will be made in conformance with ASTM C117-67, and C136-67.

4-12. CONSTRUCTION OF EMBANKMENTS.

4-12.1 General. Embankments shall be constructed of the materials and to the lines and grades indicated on the drawings and design cross section rolls or as otherwise directed and shall be maintained by the Contractor to correct heights, dimensions, and slopes until final acceptance of all work under this contract.

4-12.2 Preparation of Foundations. Before placement of materials in embankments is commenced, the foundation for embankments shall be cleared by removing and disposing of all structures, foundations, trees, brush, snags, fences, posts, garbage and other similar debris within the area of construction. Removal of sparse growth of grass or weeds will not be required. Combustible materials resulting from clearing and grubbing operations shall be disposed of by burning within areas designated by the Contracting Officer. Non-combustible materials shall be disposed of as directed. Burning operations shall be conducted in accordance with all applicable local, state, and Federal

From CPEE
4/13/92

1992 DRAWDOWN
LOWER GRANITE AND LITTLE GOOSE DAMS

APRIL 8, 1992

***** MP 61.00 TO MP 63.00 *****

THU,03-19: 3:05PM, TRACK THAT HAD BEEN RAISED AND LINED
BEFORE THE DRAWDOWN STARTING TO SAG IN SEVERAL
PLACES AND ALIGNMENT IS NOT HOLDING.
FRI,03-20: SOME ADDITIONAL SETTLEMENT.
SUN,03-22: NO CHANGE
WED,03-25: A LITTLE MORE SETTLEMENT SHOWING AT MP 62.
THU,03-26: SMALL SAG APPEARING AT MP 61.40
FRI,03-27: NO WORSE

BRIDGE 58.81, STEPTOE CANYON

THU,03-05: BACKWATER SAME LEVEL AS RIVER, NO EQUALIZER PIPE
SHOWING.
FRI,03-06: SAME AS ABOVE, WATER NORTH OF HIGHWAY BRIDGE
NEARLY GONE.
SUN,03-08: NO CHANGE
MON,03-09: 6:40AM NO CHANGE
8:15AM PIPE VISIBLE NORTH OF HIGHWAY BRIDGE,
WATER RUNNING THROUGH.
TUE,03-10: NO CHANGE
WED,03-11: 7:00AM, WATER APPEARS TO BE COMING INTO POND
BETWEEN BRIDGES, STILL SEEMS TO BE SAME LEVEL AS
RIVER.
THU,03-12: POND NEARLY EMPTY BETWEEN BRIDGES, SOME WATER
MOVEMENT WHERE I SUSPECT HOLE CUT IN TOP OF
EQUALIZER PIPE, PIPE STILL NOT VISIBLE.
FRI,03-13: WATER SWIRLING ABOVE OPENING TO EQUALIZER PIPE
BETWEEN RR BRIDGE AND HIGHWAY BRIDGE.
SUN,03-15: BACKWATER DRAINED, PIPE NOW VISIBLE.
MON,03-16: NO CHANGE
WED,03-25: TOP OF EQUALIZER PIPE ON RIVER SIDE SHOWING
THU,03-26: A LITTLE MORE PIPE VISIBLE
FRI,03-27: RIVER SIDE PIPE UNDER WATER
SUN,03-29: POND SIDE PIPE UNDER WATER, POND FILLING
MON,03-30: POND SAME LEVEL AS RIVER
TUE,03-31: NO CHANGE

***** MP 57 *****

THU,03-19: SMALL SAG APPEARING NEAR MILE POST
FRI,03-20: NOT GETTING ANY BIGGER, ABOUT 100' LONG.
SUN,03-22: NO CHANGE

MP 56.35 TO MP 56.80

THU,03-05: BACKWATER DRAINED, EQUALIZER PIPE EXPOSED.
FRI,03-06: NO CHANGE
MON,03-30: AM, NO CHANGE
PM, WATER RUNNING BACK INTO POND
TUE,03-31: NO CHANGE

***** MP 56.10 *****

MON,03-16: SAG APPEARING IN TRACK, ALSO SLIGHTLY OUT OF
ALIGNMENT, NO CRACKS IN ROADWAY.
TUE,03-17: 6:40AM, NO CHANGE
2:00PM, TRACK HAS BEEN SURFACED AND LINED
WED,03-18: TRACK SETTLED SLIGHTLY
THU,03-19: NO CHANGE
FRI,03-20: ALIGNMENT STARTING TO DETERIORATE.
SUN,03-22: NO WORSE THAN FRIDAY
WED,03-25: SOME ADDITIONAL SETTLEMENT SHOWING
THU,03-26: NO WORSE

***** MP 55.78 *****

THU,03-26: NEW CRACKS INTO SUBGRADE SOUTH SIDE OF TRACK,
SURFACE AND ALIGNMENT NOT AFFECTED
FRI,03-27: 7:00AM, ALIGNMENT BEGINNING TO DETERIORATE
3:00PM, ADDITIONAL CRACKS SHOWING
SUN,03-29: SHORT SAG STARTING TO SHOW
MON,03-30: ALIGNMENT STARTING TO DETERIORATE
TUE,03-31: NO WORSE
WED,04-01: NO CHANGE

***** MP 55.73 *****

THU,03-12: CRACKS APPEARING IN BLACKTOP OF COUNTY ROAD,
SOMEBODY ELSE AWARE OF CONDITION AS PAINT MARKS
ARE AROUND CRACKS. DOES NOT EXTEND TO NORTH SIDE
OF ROAD AT THIS TIME.
FRI,03-13: CRACKS NOT GETTING ANY LARGER.
MON,03-16: MORE CRACKS APPEARING, STAYING ON ROAD SIDE OF
DITCH BETWEEN TRACK AND ROAD, TRACK BEGINNING TO
SETTLE.
TUE,03-17: 7:00AM, NO CHANGE
2:00PM, TRACK HAS BEEN RAISED AND LINED.
WED,03-18: NO SETTLEMENT
THU,03-19: NO CHANGE

***** MP 55.62 *****

TUE,03-31: NEW CRACKS SOUTH SIDE SUBGRADE, 200' LONG,
TRACK OK
WED,04-01: TRACK STILL STABLE

***** MP 55.60 *****

THU,03-26: NEW CRACKS SOUTH SIDE IN SUBGRADE, SURFACE AND
ALIGNMENT OK
FRI,03-27: NO WORSE

***** MP 54.98 *****

THU,03-19: SETTLEMENT SHOWING IN CURVE
FRI,03-20: SAG ABOUT 120' LONG, NO WORSE, ALIGNMENT OK.
SUN,03-22: NO CHANGE
MON,04-06: TRACK GETTING ROUGHER
WED,04-08: SURFACE AND ALIGNMENT CORRECTION MADE

MP 54.65

THU,03-19: NEW CRACKS IN ROAD, TRACK OK.
FRI,03-20: NO CHANGE

***** MP 54.60 *****

MON,03-16: CURVE OUT OF ALIGNMENT, SMALL SAG 200' LONG IN
TRACK, ROADWAY NOT MOVING OR SHOWING ANY CRACKS.
TUE,03-17: 7:00AM, NO CHANGE
2:00PM, TRACK RAISED AND LINED.
WED,03-18: TRACK STABLE
THU,03-19: SOME SETTLEMENT STARTING TO SHOW.
FRI,03-20: SAG IS 200' LONG, ALIGNMENT OK.
SUN,03-22: NO CHANGE
WED,04-01: 2 CARS BALLAST DUMPED THROUGH AREA

BRIDGE 54.14

THU,03-05: BACKWATER DRAINED, SMALL STREAM RUNNING INTO A
POND WHERE EQUALIZER PIPE MAY BE LOCATED, ALSO
SMALL STREAM RUNNING FROM EDGE OF RIPRAP NORTH OF
OUR BRIDGE NORTH INTO POND.
FRI,03-06: NO CHANGE
TUE,03-10: AREA DRAINED, LOTS OF SILT IN BOTTOM, EQUALIZER
PIPE PARTIALLY VISIBLE.
WED,03-11: NO CHANGE
SUN,03-29: 1:55PM, WATER FILLING BACK POND
MON,03-30: WATER SAME LEVEL AS RIVER
TUE,03-31: NO CHANGE
WED,04-01: WATER NOW UNDER BRIDGE

***** MP 53.25 TO MP 53.31 *****

FRI,03-20: 2:00PM, TRACK BEGINNING TO SETTLE, ALIGNMENT
DETERIORATING.
SUN,03-22: NO WORSE
FRI,03-27: ALIGNMENT SLIGHTLY WORSE
SUN,03-29: NO CHANGE
WED,03-08: SURFACE AND ALIGNMENT CORRECTION MADE

MP 52.93

MON,03-16: CRACKS SOUTH SIDE OF ROAD, TRACK OK.
TUE,03-17: NO CHANGE
THU,03-26: SOME SETTLEMENT SHOWING IN CURVE
FRI,03-27: NO WORSE

MP 52.80

MON,03-16: CRACKS SOUTH SIDE OF ROAD, TRACK OK.
TUE,03-17: 7:00AM, NO CHANGE
WED,03-18: NO CHANGE
MON,03-23: ALIGNMENT STARTING TO DETERIORATE
TUE,03-24: NO WORSE
THU,04-02: BALLAST DUMPED

*****MP 52.67*****

MON,03-16: CURVE BEGINNING TO SETTLE.
TUE,03-17: 7:00AM, NO CHANGE
2:00PM, TRACK RAISED AND LINED.
WED,03-18: TRACK STABLE
THU,03-19: NO CHANGE
FRI,03-27: 7:00AM, ALIGNMENT DETERIORATING, SOME SETTLEMENT
SURFACE AND ALIGNMENT CORRECTION MADE
SUN,03-29: TRACK STABLE
MON,03-30: NO CHANGE
THU,04-02: BALLAST DUMPED
FRI,04-03: NEW CRACKS FOUND NORTH SIDE TRACK

***** MP 52.58 TO MP 52.60 *****

MON,03-16: ROADWAY CRACKED, TRACK STILL STABLE.
TUE,03-17: 7:00AM, TRACK BEGINNING TO SETTLE.
2:00PM, TRACK RAISED AND LINED.
WED,03-18: TRACK STABLE
THU,03-19: LATERAL MOVEMENT IN TRACK NEAR RAIL REST.
FRI,03-20: STILL OUT OF ALIGNMENT, NO WORSE.
SUN,03-22: NO CHANGE
TUE,03-31: AM, NO CHANGE
PM, TRACK RAISED AND LINED
WED,04-01: TRACK STABLE
THU,04-02: BALLAST DUMPED

*****MP 52.50*****

MON,03-16: TRACK BEGINNING TO SETTLE ON TANGENT.
TUE,03-17: 7:20AM, NO CHANGE.
2:00PM, TRACK RAISED AND LINED.
WED,03-18: TRACK STABLE
THU,03-19: TRACK BEGINNING TO SETTLE.
FRI,03-20: NO WORSE
THU,03-26: 7:00AM, NO CHANGE
2:00PM, TRACK RAISED AND LINED
FRI,03-27: TRACK OK
SUN,03-29: NO CHANGE
THU,04-02: BALLAST DUMPED

***** MP 52.40 *****

THU,03-12: COUNTY ROAD SETTLING, CRACKS IN BLACKTOP, ALSO
MARKED WITH PAINT. DOES NOT EXTEND TO OUR FILL.
DEEPER CRACKS AT THIS LOCATION THAN THE ONE AT MP
55.73.
FRI,03-13: CRACKS NOT GETTING ANY LARGER.
SUN,03-15: 7:50AM, CRACKS GETTING LARGER, TRACK BEGINNING TO
SETTLE.
1:30PM, CRACK IN SOUTH SHOULDER OF TRACK.
*****SLOW ORDER PLACED MP 52.25 TO MP 52.75, 25 MPH*****
MON,03-16: CURVE SETTLED, TRACK OUT OF ALIGNMENT, SAG ABOUT
300' LONG.
TUE,03-17: 7:20AM, NO CHANGE
2:00PM, TRACK RAISED AND LINED.
WED,03-18: TRACK STABLE
THU,03-19: TRACK BEGINNING TO SETTLE.
FRI,03-20: SAG ABOUT 160' LONG, BEGINNING TO GO OUT OF
ALIGNMENT.
SUN,03-22: NO WORSE
WED,03-25: BEGINNING TO SETTLE MORE...
FRI,03-27: 7:00AM, NO CHANGE
SURFACE AND ALIGNMENT CORRECTION MADE
SUN,03-29: SMALL SAG APPEARING
MON,03-30: NO WORSE
FRI,04-03: BALLAST DUMPED

BRIDGE 52.25

THU,03-05: NO BACKWATER ACCOUNT SILT, SMALL STREAM RUNNING
UNDER OUR BRIDGE AND DROPPING INTO RIPRAP BETWEEN
OUR BRIDGE AND THE HIGHWAY BRIDGE.
FRI,03-06: NO CHANGE
WED,04-01: WATER NOW UNDER BRIDGE

***** MP 51.90 *****

THU,03-26: NEW CRACK FOUND IN PM ON NORTH SIDE OF TRACK.
TRACK TAMPED AND LINED
FRI,03-27: 7:30AM, CRACK NO LARGER, TRACK OK
3:00PM, ADDITIONAL CRACK FOUND SOUTH SIDE TRACK
SUN,03-29: TRACK STILL STABLE
MON,03-30: NO CHANGE
FRI,04-03: BALLAST DUMPED

***** MP 51.70 TO MP 52.06 *****

MON,03-16: TANGENT BEGINNING TO GET CHOPPY.
TUE,03-17: 7:30AM, NO CHANGE
2:00PM, NO CHANGE
WED,03-17: 7:50AM, NO CHANGE
9:00AM, CRACKS EXTENDING INTO SOUTH SIDE OF
SUBGRADE AND BALLAST SECTION, SOME LATERAL
MOVEMENT EVIDENT. TRACK STABILIZED WITH EQUIPMENT
*****20 MPH SPEED RESTRICTION PLACED MP 51.00 TO MP 52.75*****
3:30PM, NO SIGNIFICANT CHANGES
THU,03-19: 6:30AM, NO SETTLING, TRACK BEGINNING TO GO OUT OF
ALIGNMENT.
2:05PM, CRACK APPEARING NORTH SIDE OF TRACK IN
BALLAST SECTION.
FRI,03-20: ENTIRE TANGENT RAISED AND LINED MP 51.60 TO 52.06
THE CRACKS SOUTH SIDE SEEM TO BE GETTING LARGER,
TRACK SETTLING AGAIN AT MP 51.90.
SUN,03-22: NO WORSE
THU,03-26: 7:30AM, NO CHANGE
2:40PM, NEW CRACK FOUND NORTH SIDE OF TRACK IN
BASE OF BALLAST MP 51.90. TRACK SURFACED AND
LINED.
FRI,03-27: CRACKS ON SOUTH SIDE LARGER
SUN,03-29: CRACKS NO LARGER, TRACK STABLE
MON,03-30: NO CHANGE
FRI,04-03: BALLAST DUMPED
WED,04-08: 20 MPH SPEED RESTRICTION REMOVED

***** MP 51.60 TO MP 51.70*****

MON,03-16: NEW CRACKS IN ROAD, TRACK STABLE.
TUE,03-17: 7:30AM, NO CHANGE
2:00PM, NO CHANGE
THU,03-19: 6:30AM, NO CHANGE
2:10PM, CRACKS BEGINNING TO SHOW NORTH SIDE OF
TRACK IN BALLAST SECTION AT MP 51.65
FRI,03-20: CRACKS NO LARGER, TRACK STABLE
SUN,03-22: NO CHANGE
THU,03-26: CRACKS SEEM TO BE GETTING WIDER BUT NO LONGER,
TRACK STILL STABLE
FRI,03-27: NO CHANGE
FRI,04-03: BALLAST DUMPED

MP 51.29

THU,03-05: BACKWATER DRAINED, EQUALIZER PIPE EXPOSED, SMALL
STREAM RUNNING THROUGH
FRI,03-06: NO CHANGE
MON,03-30: AM, NO CHANGE
PM, WATER RUNNING BACK TO POND
TUE,03-31: NO CHANGE

***** MP 51.18 TO 51.25 *****

TUE,03-31: AM, SURFACE AND ALIGNMENT DETERIORATING
PM, TRACK RAISED AND LINED
WED,04-01: TRACK STABLE

***** MP 51.15 *****

MON,03-16: LOW SPOT APPEARING IN MIDDLE OF THE CURVE.
TUE,03-17: NO CHANGE.
FRI,03-20: 6:50AM, NO CHANGE
2:20PM, SURFACE AND ALIGNMENT CORRECTION MADE BY
EQUIPMENT.
SUN,03-22: TRACK STABLE
MON,03-23: TRACK BEGINNING TO SETTLE AGAIN
TUE,03-24: NO WORSE

***** MP 50.78 *****

FRI,03-20: 7:00AM, SAG SHOWING IN CURVE, ALIGNMENT OK
2:20PM, SURFACE AND ALIGNMENT CORRECTION COMPLETE
SUN,03-22: TRACK OK
MON,03-23: NO CHANGE

MP 50.77

THU,03-05: BACKWATER NEARLY DRAINED, EQUALIZER PIPE NOT
VISIBLE.
FRI,03-06: EQUALIZER PIPE VISIBLE
SUN,03-08: NO CHANGE
MON,03-30: WATER COMING BACK INTO BACK POND
TUE,03-31: NO CHANGE

***** MP 50.59 *****

MON,03-23: SOME SETTLEMENT AND ALIGNMENT DETERIORATION
TUE,03-24: NO WORSE

***** MP 50.30 *****

WED,03-25: SMALL SAG APPEARING, ALIGNMENT OK
THU,03-26: NO WORSE
SUN,03-29: SAG BEGINNING TO GET LONGER
MON,03-30: SAG IS 100' LONG
TUE,03-31: NO CHANGE

MP 50, BALLAST SPUR

THU,03-05: BACKWATER DROPPING, SAME LEVEL AS RIVER, NO PIPE
VISIBLE
FRI,03-06: NO CHANGE
MON,03-09: 7:00AM, NO CHANGE. 11:20AM, EQUALIZER PIPE
VISIBLE UNDER BACKWATER SURFACE EAST END, NONE
VISIBLE ON WEST END.
TUE,03-10: EAST PIPE HALF WAY OUT OF WATER, WEST PIPE NOT
VISIBLE.
WED,03-11: NO CHANGE
MON,03-16: WEST EQ. PIPE VISIBLE NORTH SIDE, NO OTHER
CHANGES.
FRI,03-27: AM, NO CHANGE
PM, WATER OVER WEST EQ. PIPE, FLOWING INTO POND
SUN,03-29: WATER OVER EAST PIPE
MON,03-30: POND FILLING, SAME LEVEL AS RIVER
TUE,03-31: NO CHANGE

***** MP 49.90 *****

THU,03-19: TRACK BEGINNING TO SETTLE
FRI,03-20: 7:00AM, SAG ABOUT 200' LONG, ALIGNMENT OK
2:00PM, SURFACE AND ALIGNMENT CORRECTION
PERFORMED
SUN,03-22: TRACK OK
FRI,04-03: BALLAST DUMPED

***** MP 49.82 *****

FRI,03-20: SAG ABOUT 50' LONG APPEARING, ALIGNMENT OK.
SUN,03-22: NO WORSE
FRI,04-03: BALLAST DUMPED
WED,04-08: SURFACE AND ALIGNMENT CORRECTION MADE

***** MP 49.58 *****

MON,03-16: CRACKS IN ROADWAY, TRACK BEGINNING TO SETTLE.
TUE,03-17: 7:40AM, NO CHANGE
WED,03-18: NO CHANGE
SUN,03-22: NO CHANGE
MON,03-23: 7:00AM, NO CHANGE
2:00PM, SURFACE AND ALIGNMENT CORRECTION MADE
TUE,03-24: TRACK OK
WED,03-25: NO CHANGE

***** MP 49.56 *****

MON,03-16: CRACK SHOWING NORTH SHOULDER OF ROADBED, SURFACE
AND ALIGNMENT BEGINNING TO DETERIORATE.
TUE,03-17: 7:45AM, CRACK NO LARGER, NO CHANGE IN TRACK
STRUCTURE.
WED,03-18: NO CHANGE
MON,03-23: 7:00AM, NO CHANGE
2:00PM, SURFACE AND ALIGNMENT CORRECTED
TUE,03-24: NO CHANGE
FRI,03-27: 7:20AM, CRACK LONGER, EXTENDS ANOTHER 20' AWAY
FROM TRACK, TRACK STABLE
SUN,03-29: NO CHANGE

***** MP 49.50 *****

SUN,03-15: CRACKS IN ROADWAY, TRACK STABLE.
MON,03-16: CRACKS MOVING, TRACK BEGINNING TO GET CHOPPY.
TUE,03-17: 7:45AM, NO CHANGE
WED,03-18: NO CHANGE
THU,03-26: 7:30AM, NO CHANGE
2:30PM, TRACK RAISED AND LINED
FRI,03-27: TRACK STABLE
SUN,03-29: NO CHANGE

***** MP 49.25 TO MP 49.30 *****

MON,03-16: TRACK OUT OF ALIGNMENT
*****PLACED 20 MPH SPEED RESTRICTION MP 49.25 TO MP
49.75*****
TUE,03-17: 7:50AM, NO CHANGE
THU,03-19: TRACK BEGINNING TO SETTLE
FRI,03-20: ALIGNMENT STARTING TO DETERIORATE.
SUN,03-22: NO WORSE
WED,03-25: SURFACE AND ALIGNMENT CORRECTION MADE
THU,03-26: TRACK STABLE
FRI,03-27: NO CHANGE
WED,04-08: 20 MPH SPEED RESTRICTION REMOVED

***** MP 49.00 TO MP 49.03 *****

MON,03-16: CRACKS IN ROAD APPEARING, TRACK STABLE.
TUE,03-17: 8:00AM, NO CHANGE
FRI,03-20: SMALL SAG 80' LONG APPEARING, ALIGNMENT OK.
SUN,03-22: NO CHANGE
WED,03-25: SURFACE AND ALIGNMENT CORRECTION MADE
THU,03-26: TRACK STABLE
FRI,03-27: NO CHANGE

***** MP 48.79 *****

MON,03-16: SAG IN CURVE BEGINNING TO SHOW
TUE,03-17: 8:00AM, NO CHANGE
FRI,03-20: MORE SETTLEMENT APPEARING, ABOUT 160' LONG
SUN,03-22: NO WORSE
THU,03-26: 7:30AM, ALIGNMENT STARTING TO DETERIORATE
2:00PM, SURFACED AND LINED
FRI,03-27: TRACK STABLE
SUN,03-29: NO CHANGE

BRIDGE 48.70

THU,03-05: NO BACKWATER ACCOUNT SILT, STREAM RUNNING UNDER
BRIDGE.
FRI,03-06: NO CHANGE
MON,03-16: TRACK SLIGHTLY OUT OF ALIGNMENT WEST APPROACH
TO BRIDGE.
TUE,03-17: NO CHANGE
TUE,03-31: AM, NO CHANGE
PM, APPROACH RAISED AND LINED
WED,04-01: TRACK STABLE

BRIDGE 48.24

THU,03-05: NO BACKWATER ACCOUNT SILT, SMALL STREAM RUNNING
UNDER BRIDGE.
FRI,03-06: NO CHANGE
WED,04-01: WATER NOW UNDER BRIDGE

***** MP 48.20 *****

MON,03-16: NEW CRACKS IN ROAD, TRACK STABLE.
TUE,03-17: 8:05AM, NO CHANGE
THU,03-19: TRACK BEGINNING TO SETTLE
FRI,03-20: NO WORSE
WED,03-25: SURFACE AND ALIGNMENT CORRECTION MADE
THU,03-26: TRACK STABLE

***** MP 47.98 *****

FRI,03-20: 120' SAG SHOWING NEXT TO SET OFF.
SUN,03-22: NO WORSE
WED,03-25: SURFACE AND ALIGNMENT CORRECTION MADE
THU,03-26: SLIGHT DEVIATION IN ALIGNMENT APPEARING
FRI,03-27: 7:40AM, NO CHANGE
2:00PM, SURFACE AND ALINGNMENT CORRECTION MADE
SUN,03-29: TRACK STABLE
MON,03-30: NO CHANGE

MP 47.72

THU,03-05: BACKWATER DRAINED, EQUALIZER PIPE NOT VISIBLE
ACCOUNT DEBRIS, SMALL STREAM RUNNING THROUGH.
FRI,03-06: NO CHANGE
WED,04-01: WATER BACK IN POND

MP 47.28

THU,03-05: BACKWATER DRAINED, EQUALIZER PIPE EXPOSED
FRI,03-06: NO CHANGE
TUE,03-31: WATER BEGINNING TO COME BACK INTO POND

*****MP 46.74*****

THU,03-19: LOW SPOT SHOWING IN CURVE, ALIGNMENT OK
FRI,03-20: NO WORSE.
MON,03-30: AM, NO CHANGE
PM, SURFACE AND ALIGNMENT CORRECTION MADE
TUE,03-31: TRACK STABLE

*****MP 46.15*****

THU,03-19: LOW SPOT SHOWING IN CURVE, ALIGNMENT OK
FRI,03-20: NO WORSE.
FRI,03-27: SOME ALIGNMENT DETERIORATION
SUN,03-29: NO CHANGE
MON,03-30: AM, NO CHANGE
PM, SURFACE AND ALIGNMENT CORRECTION MADE
TUE,03-31: TRACK STABLE

MP 46.00

THU,03-05: BACKWATER DRAINED, EQUALIZER PIPE EXPOSED.
FRI,03-06: NO CHANGE
TUE,03-31: WATER RETURNING TO POND

***** MP 45.15 *****

WED,03-25: SOME ALIGNMENT DETERIORATION APPEARING
THU,03-26: NO WORSE
MON,03-30: AM, NO CHANGE
PM, SURFACE AND ALIGNMENT CORRECTION MADE
TUE,03-31: TRACK STABLE

**** MP 44.85 ****

THU,03-05: BACKWATER NEARLY DRAINED, SAME LEVEL AS RIVER, NO
STREAM RUNNING INTO BACKWATER, PIPE NOT VISIBLE.
FRI,03-06: NO CHANGE
SUN,03-08: BACKWATER DRAINED, EQUALIZER PIPE EXPOSED.
MON,03-09: NO CHANGE
MON,03-23: TRACK BEGINNING TO SETTLE, SLIGHTLY OUT OF
ALIGNMENT
TUE,03-24: ALIGNMENT SOMEWHAT WORSE
FRI,03-27: AM, NO CHANGE
SURFACE AND ALIGNMENT CORRECTION MADE
SUN,03-29: TRACK STABLE
MON,03-30: TRACK STABLE, WATER FILLING POND
TUE,03-31: NO CHANGE

BRIDGE 42.04, WAWAWAI CANYON

THU,03-05: BACKWATER DRAINING NICELY, SAME LEVEL AS RIVER,
NO EQUALIZER PIPE VISIBLE.
FRI,03-06: NO CHANGE
THU,03-12: VERY SMALL POND REMAINING, STILL SAME LEVEL AS
RIVER, STREAM FLOWING INTO POND, NO PIPE VISIBLE,
SUSPECT AT CENTER OF POND.
FRI,03-13: POND SMALLER, EQUALIZER STILL NOT VISIBLE.
SUN,03-15: 7:35AM, NO CHANGE.
1:30PM, NORTH PIPE VISIBLE, POND DRAINING STILL.
MON,03-16: WATER RUNNING THROUGH PIPE.
TUE,03-17: NO CHANGE
TUE,03-24: EQUALIZER PIPE VISIBLE IN RIVER
WED,03-25: NO CHANGE
FRI,03-27: RIVER SIDE PIPE NEARLY COVERED
PM, WATER BEGINING TO BACK UP INTO BACKPOND
SUN,03-29: WATER COVERING PIPE ON NORTH SIDE
MON,03-30: WATER SAME LEVEL AS RIVER
TUE,03-31: AM, NO CHANGE
PM, WATER RUNNING UNDER BRIDGE

MP 41.44

THU,03-05: BACKWATER NEARLY DRAINED, EQUALIZER PIPE NOT
VISIBLE.
FRI,03-06: NO CHANGE, SMALL POND OVER WHAT APPEARS TO BE THE
EQUALIZER PIPE, SMALL STREAM FLOWING INTO POND.
SUN,03-08: 7:00AM, NO CHANGE
1:30PM, EQUALIZER PIPE RIVER SIDE VISIBLE, STILL
SMALL POND ON NORTH SIDE.
MON,03-09: POND STILL SETTLING, NO PIPE VISIBLE NORTH SIDE,
HALF OUT OF WATER ON RIVER SIDE.
TUE,03-10: POND LEVEL HIGHER THAN RIVER LEVEL BUT NOT
RAISING, RIVER SIDE PIPE NEARLY ALL THE WAY OUT
OF WATER.
THU,03-12: OUTLET OF PIPE COMPLETELY OUT OF WATER ON RIVER
SIDE, NO WATER RUNNING THROUGH PIPE, POND NOT
GETTING ANY LARGER NORTH OF TRACK.
FRI,03-13: NO CHANGE
WED,03-25: SOME SEEPAGE SHOWING AT RIVER'S EDGE
THU,03-26: SOME SEEPAGE STILL SHOWING
FRI,03-27: RIVER LEVEL COVERING SEEPAGE AREA
SUN,03-29: WATER IN OUTLET OF EQ. PIPE
MON,03-30: POND AT SAME LEVEL AS LAST WEEK
TUE,03-31: RIVER LEVEL HIGHER THAN POND
WED,04-01: POND AND RIVER SAME LEVEL

MP 41.25

THU,03-05: BACKWATER NEARLY DRAINED, WATER RUNNING OUT BUT
CANNOT TELL IF RUNNING THROUGH THE FILL OR THE
EQUALIZER PIPE, PIPE NOT VISIBLE.
FRI,03-06: WATER STILL RUNNING OUT, SMALL STREAM FEEDING
AREA, NO WATER COMING OUT OF FILL ON RIVER SIDE.
MON,03-09: 7:00AM, NO CHANGE
11:50AM, WATER NO LONGER RUNNING THROUGH THE
FILL, WATER LEVEL IN POND DROPPING.
TUE,03-10: POND LEVEL STILL DROPPING, NO PIPE VISIBLE
WED,03-11: POND NO LONGER DROPPING, HIGHER THAN RIVER BUT
NOT RAISING.
THU,03-12: NO CHANGE
THU,03-26: RIVER SIDE PIPE VISIBLE
FRI,03-27: RIVER SIDE PIPE COVERED
MON,03-30: NO CHANGE IN POND SIZE
TUE,03-31: POND LEVEL RAISED OVERNIGHT, SAME LEVEL AS RIVER

*****MP 41.20*****

THU,03-19: TRACK BEGINNING TO SETTLE AND SLIGHTLY OUT OF
ALIGNMENT
FRI,03-20: NO WORSE
MON,03-30: SAG ABOUT 100' LONG, NO CHANGE
TUE,03-31: ALIGNMENT DETERIORATING MORE
WED,04-01: SAG LONGER, 160' LONG
THU,04-02: SURFACE AND ALIGNMENT CORRECTION MADE

***** MP 40.98 *****

THU,03-26: SOME SETTLEMENT IN CURVE, ALIGNMENT OK
FRI,03-27: NO WORSE
MON,03-30: NO CHANGE, SAG ABOUT 120' LONG
TUE,03-31: NO CHANGE
TUE,04-07: SURFACE AND ALIGNMENT CORRECTION MADE

MP 40.84

THU,03-05: BACKWATER SAME LEVEL AS RIVER, EQUALIZER PIPE NOT
VISIBLE.
FRI,03-06: NO CHANGE, SOME WAVE ACTION ON RIVER SIDE, WATER
BELOW RIP-RAP LINE, NO WASHING.
MON,03-09: STILL DRAINING, EQUALIZER PIPE VISIBLE UNDER POND
SURFACE.
TUE,03-10: 7:30AM, TOP OF PIPE OUT OF WATER NORTH SIDE.
12:30PM, PIPE VISIBLE ON RIVER SIDE UNDER WATER
SURFACE.
WED,03-11: TOP OF PIPE RIVER SIDE OUT OF WATER
THU,03-12: PIPE OUT OF WATER ON RIVER SIDE.
SUN,03-15: POND DRAINED.
MON,03-16: NO CHANGE
SUN,03-29: PIPE COVERED, POND FILLING
MON,03-30: POND SAME LEVEL AS RIVER

***** MP 40.80 *****

MON,03-16: SMALL SAG APPEARING, ALIGNMENT OK.
FRI,03-20: SAG NO WORSE, 240' LONG.
SUN,03-22: NO CHANGE
TUE,04-07: SURFACE AND ALIGNMENT CORRECTION MADE

MP 40.57

THU, 03-05: BACKWATER NEARLY DRAINED, EQUALIZER PIPE NOT
VISIBLE, LOTS OF VEGETATION COVERING BACKWATER
AREA.
FRI, 03-06: BACKWATER DRAINED, SMALL STREAM RUNNING INTO A
DEPRESSION IN THE ROCKS, CANNOT SEE THE EQUALIZER
PIPE, ASSUME IT IS IN THE DEPRESSION.
SUN, 03-08: NO CHANGE
TUE, 03-31: WATER BACK IN POND, SAME LEVEL AS RIVER

BRIDGE 40.26, BUCK CANYON

THU,03-05: BACKWATER ABOUT 4 FEET HIGHER THAN RIVER, APPEARS TO BE DRAINING SLOWLY. MARKED A ROCK ON THE BACKWATER AT 1:00PM, 5-1/2" TOP OF ROCK TO WATER.

FRI,03-06: 8:00AM, BACKWATER STILL HIGHER THAN RIVER, MEASURED SAME ROCK, 13" TO WATER.
11:50AM, WATER 14-1/2" FROM TOP OF ROCK.
1:40PM, WATER 15" FROM TOP OF ROCK.

SUN,03-08: 7:00AM, WATER LEVEL 35" BELOW ROCK, HAD TO FIND ANOTHER ROCK TO MEASURE FROM. NEW ROCK IS 20" ABOVE WATER.
1:00PM, WATER LEVEL 23" BELOW ROCK.

MON,03-09: 7:30AM, WATER LEVEL 23" BELOW ROCK.
12:30PM, WATER LEVEL 34" BELOW ROCK.
MOVED TO NEW ROCK, WATER LEVEL 26" BELOW ROCK.

TUE,03-10: 7:30AM, WATER LEVEL 35" BELOW ROCK.
11:30AM, WATER LEVEL 37" BELOW, MOVED TO NEW ROCK, NEW MEASUREMENT 1-1/2".
12:30PM, MEASUREMENT 2".

WED,03-11: 7:30AM, WATER MEASURES 12-1/2".
2:00PM, WATER MEASURES 15", MOVED TO A LOG, NEW MEASUREMENT 9".

THU,03-12: 7:30AM, WATER MEASURES 18" BELOW YESTERDAY'S MARK, PLACED NEW MARK 4" ABOVE WATER.

FRI,03-13: 7:30AM, WATER LEVEL DOWN 14" FROM YESTERDAY'S MARK. QUIT MARKING ROCKS AND LOGS.

SUN,03-15: POND APPEARS TO BE STILL DRAINING.

MON,03-16: 7:30AM, MARKED ANOTHER ROCK JUST TO CHECK
12:30PM, BACKWATER LEVEL DROPPED 2" FROM PREVIOUS MARK.

TUE,03-17: 8:20AM, BACKWATER STILL DROPPING SLOWLY.

WED,03-18: STILL DRAINING SLOWLY

THU,03-19: STILL DRAINING SLOWLY

FRI,03-20: NO CHANGE

SUN,03-22: NO CHANGE

MON,03-23: 3 SMALL STREAMS RUNNING INTO BASE OF FILL ON NORTH SIDE, NO SETTLEMENT

TUE,03-24: WATER LEVEL STILL DROPPING, STREAMS NO LONGER RUNNING INTO BASE OF FILL

WED,03-25: NO CHANGE

THU,03-26: NO CHANGE

FRI,03-27: NO CHANGE

SUN,03-29: POND VERY MUDDY, SEEMS TO BE FILLING

MON,03-30: AM, POND FILLING SLOWLY, LOWER THAN RIVER
PM, STILL FILLING SLOWLY, RIVER WITHIN 7' OF RUNNING UNDER BRIDGE, POND 15' BELOW LEVEL OF RIP RAP UNDER BRIDGE.

TUE,03-31: 7:35AM, POND RAISING SLOWLY, WATER LEVEL 13' BELOW RIPRAP UNDER BRIDGE, RIVER LEVEL 3' BELOW RIPRAP. MANY SMALL STREAMS SEEPING THROUGH FILL.
2:00PM, POND LEVEL 1' HIGHER THAN THIS MORNING, RIVER WITHIN 1' OF RUNNING UNDER BRIDGE.

WED,04-01: POND AND RIVER SAME LEVEL, WATER UNDER BRIDGE

MP 39.90

THU,03-05: CONTINUATION OF BACKWATER OF MP 39.73, WATER SAME
LEVEL AS RIVER, NO EQUALIZER PIPE VISIBLE.
FRI,03-06: NO CHANGE
SUN,03-08: BACKWATER NEARLY DRAINED, PIPE VISIBLE UNDER
SURFACE.
MON,03-09: 7:00AM, EQUALIZER PIPE NORTH SIDE EXPOSED.
12:35PM, RIVER SIDE PIPE VISIBLE.
TUE,03-10: NO CHANGE
SUN,03-29: POND BEGINNING TO FILL, SAME LEVEL AS RIVER
MON,03-30: NO CHANGE

MP 39.73

THU,03-05: BACKWATER DRAINING, CONTINUATION OF POND AT MP
39.90, HIGH SPOT BETWEEN PONDS. NO PIPE VISIBLE.
FRI,03-06: NO CHANGE
SUN,03-15: TOP OF EQUALIZER PIPE VISIBLE NORTH SIDE.
MON,03-16: NO CHANGE
WED,03-25: EQUALIZER PIPE VISIBLE RIVER SIDE
FRI,03-27: PIPE COVERED RIVER SIDE, BACKWATER STARTING TO
FILL
SUN,03-29: WATER OVER PIPE ON POND SIDE
MON,03-30: POND SAME LEVEL AS RIVER
TUE,03-31: NO CHANGE

LITTLE GOOSE POOL

*****MP 25.75 TO MP 26.50*****

THU,03-19: TRACK PREVIOUSLY WORKED SHOWING SOME SETTLEMENT
AND STARTING TO GET OUT OF ALIGNMENT
FRI,03-20: NO WORSE
SUN,03-22: NO CHANGE

BRIDGE 25.03, LONG HOLLOW

MON,03-16: WATER STILL UNDER BRIDGE TO BACKWATER.
TUE,03-17: STILL WATER UNDER BRIDGE, BACKWATER DROPPING.
WED,03-18: NO WATER UNDER BRIDGE, BACKWATER DROPPING
THU,03-19: BACKWATER SEPARATED INTO TWO AREAS, EAST END IS
DRAINING, WEST ISN'T
FRI,03-20: EAST POND SAME LEVEL AS RIVER, WEST POND
BEGINNING TO DRAIN SLOWLY.
SUN,03-22: WEST POND DRAINED, EAST POND SAME LEVEL AS RIVER
MON,03-23: EAST POND STILL DRAINING
TUE,03-24: POND DRAINING, LEVEL HIGHER THAN RIVER
WED,03-25: BACKWATER BEGINNING TO RAISE
THU,03-26: 8:00AM, BACKWATER STILL COMING UP, WITHIN A FOOT
OF RUNNING UNDER BRIDGE
1:45PM, WATER RUNNING UNDER BRIDGE
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

BRIDGE 23.62, PENAWAWA

MON,03-16: WATER STILL UNDER BRIDGE, BACKWATER SILTED IN,
EXPECT STREAM WILL CONTINUE RUNNING UNDER THE
BRIDGE.
FRI,03-20: WATER RUNNING UNDER BRIDGE, CUTTING CHANNEL
THROUGH SILT.
THU,03-26: SLACKWATER NOW UNDER BRIDGE
FRI,03-27: NO CHANGE
SUN,03-29: NO CHANGE

*****MP 23.39*****

MON,03-23: TRACK BEGINNING TO BE SLIGHTLY OUT OF ALIGNMENT
AND SOME SETTLEMENT SHOWING
TUE,03-24: NO WORSE
SUN,03-29: NO CHANGE

***** MP 21.59 *****

MON,03-16: BACKWATER NEARLY SILTED FULL, STREAM RUNNING INTO
POND, NO WATER RUNNING OUT OF MAIN CULVERT.
TUE,03-17: BACKWATER DROPPING, SAME LEVEL AS RIVER.
WED,03-18: NO CHANGE
THU,03-19: BACKWATER DRAINED.
TRACK BEGINNING TO GET SLIGHTLY OUT OF ALIGNMENT
FRI,03-20: STREAM RUNNING THROUGH EQUALIZER PIPE, NO CHANGE
IN TRACK STRUCTURE.
MON,03-23: OUTLET OF EQ. PIPE VISIBLE, WATER AND SILT COMING
OUT.
TUE,03-24: RIVER LEVEL ABOVE OUTLET END OF PIPE
WED,03-25: BACKWATER STARTING TO FILL
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

MP 20.70

MON,03-16: BACKWATER DROPPING, SAME LEVEL AS RIVER.
TUE,03-17: BACKWATER NOW SAME LEVEL AS YESTERDAY, NO LONGER
DROPPING OR SAME LEVEL AS RIVER.
WED,03-18: NO CHANGE
FRI,03-27: BACKWATER APPEARS TO BE UP ABOUT 6", SAME LEVEL
AS RIVER
SUN,03-29: NO CHANGE

***** MP 20.29 *****

MON,03-23: SHORT SAG APPEARING, TRACK SLIGHTLY OUT OF
ALIGNMENT
TUE,03-24: NO WORSE
SUN,03-29: NO CHANGE

MP 20.19

MON,03-16: VERY SMALL BACKWATER, SMALL STREAM FEEDING.
TUE,03-17: APPEARS TO BE SAME LEVEL AS YESTERDAY, BACKWATER
VERY SHALLOW.
WED,03-18: NO CHANGE
SUN,03-29: POND APPEARS TO BE SAME LEVEL AS RIVER

MP 19.86

MON,03-16: BACKWATER DROPPING WITH RIVER.
TUE,03-17: STILL DROPPING, SAME LEVEL AS RIVER
WED,03-18: NO CHANGE
MON,03-23: EQUALIZER PIPE VISIBLE, WATER DRAINED
WED,03-25: WATER COMING BACK IN TO BACK POND
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

19.72

MON,03-16: BACKWATER DROPPING WITH RIVER.
TUE,03-17: STILL DROPPING, SAME LEVEL AS RIVER.
WED,03-18: NO CHANGE
WED,03-25: BACKWATER RISING
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

***** MP 19.18 *****

TUE,03-17: TRACK A LITTLE CHOPPY, ALIGNMENT OK
WED,03-18: NO CHANGE
SUN,03-29: NO CHANGE

MP 19.08 & 19.10

WED,03-11: PUMPED DOWN TO CHECK LEVEL OF BACKWATER,
DISCOVERED IT WAS ONLY ABOUT 3 FEET DEEP, WILL
NOT WORRY ABOUT IT.
MON,03-16: WATER RUNNING THROUGH MAIN CULVERTS.
TUE,03-17: NO CHANGE
SUN,03-29: SMALL SAG 70' LONG APPEARING

MP 18.85

MON,03-16: WATER LEVEL DROPPING IN BACKWATER.
TUE,03-17: WATER STILL DROPPING, SAME LEVEL AS RIVER.
THU,03-19: BACKWATER NEARLY DRAINED
FRI,03-20: NO CHANGE
MON,03-23: PIPE VISIBLE NORTH SIDE
WED,03-25: BACKWATER BEGINNING TO FILL
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

*****MP 18.70 *****

THU,03-19: TRACK BEGINNING TO SETTLE AND GET OUT OF
ALIGNMENT
FRI,03-20: NO WORSE
SUN,03-29: NO CHANGE

***** MP 13.56 TO MP 13.70 *****

MON,03-16: MARKED CRACKS SOUTH SIDE THAT HAVE BEEN THERE FOR
YEARS TO SEE IF THEY GET ANY WORSE.
TUE,03-17: NO CHANGE
WED,03-25: SMALL SAG APPEARING AT MP 13.54
SUN,03-29: NO CHANGE

MP 13.29

MON,03-16: BACKWATER DROPPING.
TUE,03-17: WATER LEVEL STILL DROPPING
MON,03-23: BACKWATER NEARLY EMPTY
THU,03-26: WATER COMING BACK UP, SAME LEVEL AS RIVER
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

MP 12.83

MON,03-16: BACKWATER DROPPING
TUE,03-17: BACKWATER STILL DROPPING, SAME LEVEL AS RIVER.
WED,03-25: BACKWATER RAISING
THU,03-26: NO CHANGE
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

MP 12.63

MON,03-16: BACKWATER DROPPING
TUE,03-17: BACKWATER STILL DROPPING, SAME LEVEL AS RIVER.
WED,03-25: BACKWATER RAISING SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

MP 12.02

MON,03-16: OUTLET OF MAIN CULVERT STILL IN THE WATER ON
RIVER SIDE, BACKWATER 3" BELOW BOTTOM OF PIPE
INLET. WATER LEVEL DROPPING.
TUE,03-17: CULVERT ENTIRELY OUT OF WATER, BACKWATER STILL
DROPPING.
WED,03-18: WATER STILL DROPPING
WED,03-25: BACKWATER RAISING
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

MP 11.88

MON,03-16: OUTLET OF MAIN CULVERT IN WATER ON RIVER SIDE,
BACKWATER 1" ABOVE BOTTOM OF INLET, WATER LEVEL
DROPPING.
TUE,03-17: CULVERT ENTIRELY OUT OF WATER, BACKWATER STILL
DROPPING AT SAME LEVEL AS RIVER.
WED,03-25: BACKWATER RAISING
THU,03-26: 8:50AM, NO CHANGE
1:22PM, RIVER TO BOTTOM OF CULVERT RIVER SIDE
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

***** MP 10.50 *****

WED,03-18: SMALL SAG STARTING TO SHOW
FRI,03-27: SAG A LITTLE LONGER, 100' LONG
SUN,03-29: NO CHANGE

BRIDGE 9.76

MON,03-16: WATER UNDER BRIDGE, BACKWATER DROPPING.
TUE,03-17: WATER NEARLY OUT FROM UNDER BRIDGE, BACKWATER
DROPPING.
WED,03-18: BACKWATER NEARLY DRAINED
THU,03-19: BACKWATER DOWN FAR ENOUGH TO EXPOSE EQUALIZER
PIPE NORTH SIDE
FRI,03-20: BACKWATER DRAINED
MON,03-23: PIPE EXPOSED ON RIVER SIDE
WED,03-25: WATER COMING BACK IN
THU,03-26: 8:45AM, NO CHANGE
1:18PM, WATER RUNNING UNDER BRIDGE
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

MP 9.36

MON,03-16: SMALL BACKWATER, NO EVIDENCE OF DRAINING, DON'T
EXPECT ANY PROBLEM.
SMALL SAG WEST OF THIS LOCATION THAT HAS BEEN
THERE SINCE BEFORE THE DRAWDOWN.
THU,03-19: BACKWATER LEVEL LOWER THAN YESTERDAY
FRI,03-20: BACKWATER NEARLY EMPTY.
MON,03-23: BACKWATER DRAINED
SUN,03-29: POND FILLING, SAME LEVEL AS RIVER

***** CURVE 8 *****

WED,03-18: CURVE BEGINNING TO GET CHOPPY AND RIDE ROUGH
SUN,03-29: NO CHANGE

BRIDGE 7.99

MON,03-16: BACKWATER DRAINING, STILL A FOOT OF WATER UNDER
BRIDGE.
TUE,03-17: NO WATER UNDER BRIDGE, BACKWATER DROPPING.
WED,03-18: STILL DRAINING
WED,03-25: BACKWATER RAISING, SAME LEVEL AS RIVER
THU,03-26: AM: NO CHANGE
1:15PM, WATER RUNNING UNDER BRIDGE
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

***** MP 7.70 *****

MON,03-23: SOME SETTLEMENT, ALIGNMENT
SUN,03-29: NO CHANGE

MP 7.62

MON,03-16: BACKWATER DRAINING, MAIN CULVERT OUT OF WATER.
WED,03-25: BACKWATER FILLING
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

MP 7.40 TO MP 7.46

MON,03-16: MARKED CRACK SOUTH SIDE THAT HAS BEEN THERE FOR
SOME TIME.
TUE,03-17: CRACK NOT GETTING ANY LARGER
SUN,03-29: NO CHANGE

MP 7.36

MON,03-16: SMALL BACKWATER DRAINING.
TUE,03-17: STILL DRAINING, SAME LEVEL AS RIVER.
THU,03-19: BACKWATER NEARLY EMPTY
FRI,03-20: BACKWATER EMPTY, EQUALIZER PIPE EXPOSED NORTH
SIDE
WED,03-25: WATER BEGINNING TO RAISE
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

MP 6.86

MON,03-16: BACKWATER DRAINING, SMALL STREAM FEEDING.
TUE,03-17: BACKWATER STILL DRAINING, SAME LEVEL AS RIVER
WED,03-25: BACKWATER BEGINNING TO RAISE
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

MP 6.65

MON,03-16: BACKWATER DRAINING.
TUE,03-17: BACKWATER DRAINING, SAME LEVEL AS RIVER.
WED,03-25: BACKWATER BEGINNING TO RAISE
THU,03-26: NO CHANGE
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

BRIDGE 6.57

MON,03-16: WATER STILL UNDER BRIDGE, BACKWATER DRAINING.
TUE,03-17: WATER NEARLY OUT FROM UNDER BRIDGE, BACKWATER
STILL DRAINING.
WED,03-18: NO WATER UNDER BRIDGE, BACKWATER DRAINING
WED,03-25: BACKWATER RAISING
THU,03-26: NO CHANGE, WATER WITHIN A FOOT OF RUNNING UNDER
BRIDGE
1:13PM, WATER RUNNING UNDER BRIDGE
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

MP 6.00

MON,03-16: BACKWATER DRAINING.
TUE,03-17: STILL DRAINING, SAME LEVEL AS RIVER.
WED,03-25: BACKWATER RAISING
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

***** MP 5.31 *****

MON,03-16: BACKWATER DRAINING.
TUE,03-17: STILL DRAINING, SAME LEVEL AS RIVER.
WED,03-18: NO CHANGE
THU,03-19: STILL DRAINING, TRACK BEGINNING TO GET ROUGH
ACROSS FILL
FRI,03-20: BACKWATER STILL DRAINING, TRACK NO WORSE
WED,03-25: WATER LEVEL RAISING
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

BRIDGE 5.05

MON,03-16: WATER STILL UNDER BRIDGE, BACKWATER DRAINING.
WED,03-18: NO WATER UNDER BRIDGE, POND DRAINING
WED,03-25: BACKWATER LEVEL RAISING
THU,03-26: WATER NEARLY READY TO RUN UNDER BRIDGE
1:10PM, WATER UNDER BRIDGE
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

MP 4.55

MON,03-16: BACKWATER DRAINING.
TUE,03-17: STILL DRAINING, SAME LEVEL AS RIVER
WED,03-25: BACKWATER LEVEL RAISING
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

MP 4.45

MON,03-16: BACKWATER DRAINING.
TUE,03-17: STILL DRAINING, SAME LEVEL AS RIVER
WED,03-25: BACKWATER LEVEL RAISING
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

MP 4.22

MON,03-16: BACKWATER DRAINING.
TUE,03-17: STILL DRAINING, SAME LEVEL AS RIVER
WED,03-25: WATER LEVEL RAISING
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

MP 4.15

MON,03-16: BACKWATER DRAINING.
TUE,03-17: STILL DRAINING, SAME LEVEL AS RIVER
WED,03-25: BACKWATER LEVEL RAISING
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

MP 3.99

MON,03-16: BACKWATER DROPPING.
TUE,03-17: DRAINING, SAME LEVEL AS RIVER.
WED,03-25: BACKWATER RAISING
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

MP 3.43

MON,03-16: BACKWATER DROPPING.
TUE,03-17: STILL DRAINING, SAME LEVEL AS RIVER.
WED,03-25: BACKWATER RAISING
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

MP 3.14

MON,03-16: BACKWATER DROPPING.
TUE,03-17: STILL DRAINING, SAME LEVEL AS RIVER.
WED,03-25: BACKWATER RAISING
FRI,03-27: BACKWATER SAME LEVEL AS RIVER
SUN,03-29: NO CHANGE

APPENDIX I-1

CAMAS PRAIRIE RAILROAD COMPANY DRAWDOWN FINDINGS

PAVEMENT CRACKS
as of 3/29/92

<u>Location</u>	<u>Mile</u>	<u>Station</u>	<u>Length</u>	<u>Width</u>
Road 9000	17.1	2404+74	165	3/4"
	17.5	2431+14	149	1"
	18.0	2452+26	58	1/2"
	18.1	2457+54	19	1/4"
	19.9	2552+58	422	10"
	20.9	2605+38	248	1"
	20.9	2605+38	63	1/4"
	21.3	2626+50	341	9"
	21.5	2637+06	154	3"
	22.4	2684+58	80	1/4"
	22.9	2710+98	24	4-6"
	23.5	2742+66	221	3/4"
	23.7	2753+22	45	2"
CPRR	23.7	2753+22	197	15"
	23.8	2758+50	33	4-6"
	23.8	2758+50	51	7"
Road 9000/CPRR	23.9	2763+78	191	6"
Road 9000	23.9	2763+78	48	2"
	24.2	2779+62	81	6"
	24.3	2784+90	118	13"
	24.3	2784+90	102	4"
	24.3	2784+90	228	13"
	24.4	2790+18	289	7"
	24.6	2800+74	313	11"
	24.7	2806+02	116	9"
	24.7	2806+02	254	10"
	24.8	2811+30	241	1"
	24.9	2816+58	56	1/8"
	26.1	2849+94	50	1/4"
	26.3	2890+50	204	4"
	26.5	2901+06	253	5"
	26.5	2901+06	15	1/4"
	27.4	2948+58	123	6"
CPRR	27.5	2953+86	30	4"
	27.6	2959+14	162	14"
Road 9000	27.6	2959+14	758	14"
	27.8	2964+42	278	2"
Hwy 193	5.5	3252+18	437	3/4"
	5.8	old crack		
	6.2	old crack		
	6.3	3199+38	70	1/2"
	6.4	3204+66	189	1 1/4"
	8.3	3304+98	44	1"
	8.4	3310+26	200	1/2"
	8.4	3310+26	35	1/4"

<u>Mile</u>	<u>Station</u>	(Hwy 193 RM9 = 30.65)
30	3120+18	
29	3033+06	
28	2980+26	
27	2927+46	
26	2874+66	
25	2821+86	
24	2769+06	
23	2716+26	
22	2663+46	
21	2610+66	
20	2557+86	

APPENDIX I-2

WHITMAN COUNTY ROAD 9000 PAVEMENT CRACKS

APPENDIX J
EMERGENCY EQUIPMENT AND MATERIALS
1992 Reservoir Drawdown Test
Lower Granite and Little Goose Dams

Scott Leech
Walla Walla District
U.S. Army Corps of Engineers

APPENDIX J

TEST DRAWDOWN 1992 OF LITTLE GOOSE AND LOWER GRANITE DAMS EMERGENCY EQUIPMENT AND MATERIALS

1. INTRODUCTION.

In accordance with recommendations contained in the Record of Decision for the 1992 Options Analysis Document/Environmental Impact Statement for the Columbia River Salmon Flow Measures, a test drawdown of Little Goose and Lower Granite Reservoirs was conducted during the period of 1 to 31 March 1992. The drawdown test enabled the Corps of Engineers to evaluate the effects and feasibility of conducting reduced reservoir water levels on a regular basis. The lowering of water levels within the reservoirs theoretically would increase instream velocities that would potentially move salmon smolts downstream at a faster rate, which would theoretically increase their survival.

In the event of an embankment failure within Government project structures, heavy earthwork equipment was made available on standby for immediate use. Materials were stockpiled for immediate use, and other borrow areas were identified.

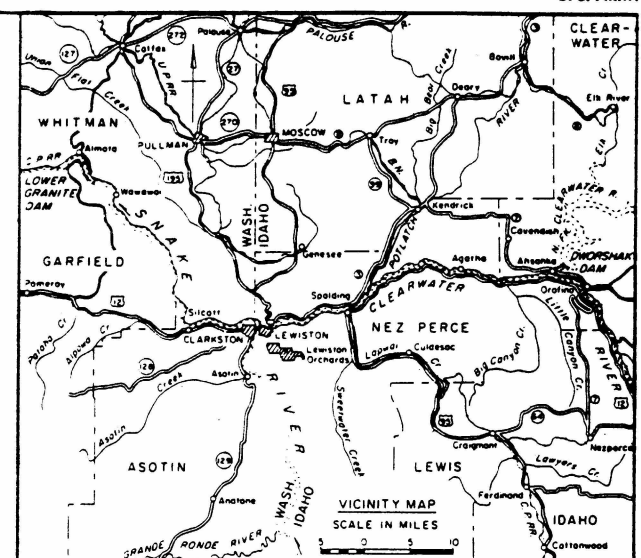
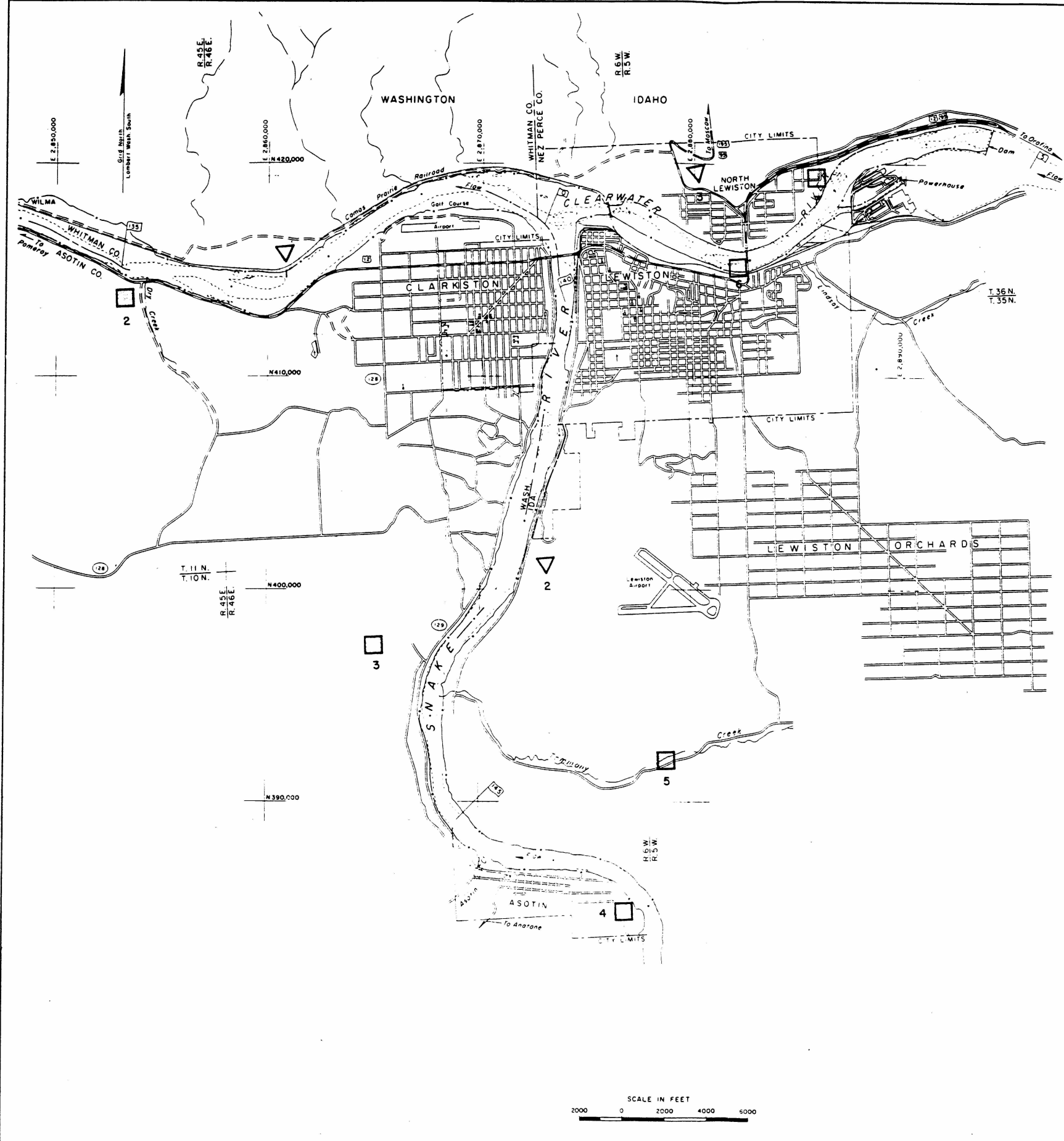
2. EMERGENCY EQUIPMENT AND MATERIALS.

A crawler tractor with a minimum of 140 horsepower (hp) D-6C or D Caterpillar or equivalent, hydraulic excavator crawler type with thumb and a minimum bucket capacity of 1.5 cubic yards 195 hp Caterpillar 235 or equivalent, front end bucket loader with a minimum bucket capacity of 3 cubic yards 150 hp Caterpillar 966B or equivalent, truck and tractor trailer for crawler tractor, and two 3000 gallon per minute (gpm) pumps with 200 feet of discharge line were stored at the Clarkston Resource Office during the drawdown period. Embankment materials necessary to repair damage were available at local borrow areas. Some of the borrow areas were identified as follows: Dry Creek gravel borrow area; Critchfield Canyon gravel borrow area; Memorial Bridge impervious gravel stockpile area; Port of Wilma fine grained and gravel borrow area; Hell's Gate fine-grained and gravel borrow area; McCann Pit fine-grained and impervious gravel borrow area; and Atlas Sand and Gravel 8-inch minus material, see Plate 1. Verification of Government owned borrow areas on the Lower Granite reservoir was completed by the Real Estate Division, see attached memorandum. Riprap size rock was produced from quarries located at Silcot, Bishop, and Tammany. At each quarry 4,000 cubic yards each of riprap and rockfill material were stockpiled for emergency use.

3. EQUIPMENT AND MATERIAL USE.

The two pumps stored at the Clarkston Resource Office were the only equipment used during the drawdown for emergency action. West

Evans pond, located on Washington State Highway 12, required pumping when the water level fell below the culvert draining into East Evans pond. Borrow materials were not required during the drawdown. Stockpiled riprap material was not required during the drawdown, however the Washington State Department of Transportation used some riprap at the Silcot quarry to repair the culvert outlet at East Evans pond.



LEGEND
BORROW AREA AS OF 1977

- GOVERNMENT OWNED BORROW AREA NUMBERS
 - 1. SILCOTT, RIPRAP AND ROCKFILL STOCKPILES, QUARRY AREA AND TOPSOIL STOCKPILE
 - 2. DRY CREEK, GRAVEL BORROW AREA
 - 3. CRITCHFIELD CANYON, GRAVEL BORROW AREA
 - 4. ASOTIN, RIPRAP AND ROCKFILL STOCKPILES
 - 5. TAMMANY CREEK, QUARRY AREA
 - 6. IMPERVIOUS GRAVEL STOCKPILE AREA
 - 7. GRAVEL FILL STOCKPILE AREA
- △ PRIVATE BORROW AREA
 - 1. WILMA, - FINE GRAINED AND GRAVEL BORROW AREA
 - 2. HELL'S GATE, - FINE GRAINED AND GRAVEL BORROW AREA
 - 3. MCCANN PIT, - FINE GRAINED AND IMPERVIOUS GRAVEL BORROW AREA

ALSO, COMMERCIAL SOURCES

PLATE 28.01-1 Rev. Dec. 77

B ADDED BORROW AREAS	
A 28.01-1 IS CONSTRUCTED	
REVISION	DATE DESCRIPTION
U. S. ARMY ENGINEER DISTRICT WALLA WALLA, WASHINGTON	
DESIGNED: H. BOGGER	
DRAWN: C. T. PULLE	
CHECKED: S. T. R. E. M. E. R	
SUPERVISOR: R. E. S. H. U. B. L. E. S.	
SUBMITTED: R. E. S. H. U. B. L. E. S.	
APPROVED: DATE 73 MAR. 01	
COLONEL C. E. DISTRICT ENGINEER	
SCALE AS SHOWN INV. NO. ENG. 73-8-66	
RECOMMENDED: FILE NO.	
CHIEF ENGINEERING DIVISION SHEET 2.1 GDG-1-0-1/62.1	

14 April 1992

MEMORANDUM FOR: Chief, Geotechnical Branch

SUBJECT: Verification on Government-owned Borrow and Materials areas on Lower Granite Lock and Dam Project

1. This office has reviewed the exhibit provided to us entitled Lewiston Levees, Borrow Areas as of 1975. With the exception of the previously Government-owned Stockpile Area No. 7, we have verified that all other Government-owned areas identified on that exhibit are still in our ownership. We have already provided copies of the real estate drawings to Ms. Andy Shoulders for her use. Particulars on each of the numbered sites are as follows:

a. Site No. 1, designated Silcott, appears on Segment 10 as part of Tract 1001. It was previously recommended for disposal and reported to the General Services Administration as excess to our needs. However the site was subsequently withdrawn from excess and returned to our control and custody in anticipation of continuing requirements due to the drawdown activities.

b. Site No 2, designated Dry Creek, also appears on Segment 10 as a collection of individual tracts near river mile 135. It is classified for continued operations purposes as Dry Creek Habitat Management Unit.

c. Site No. 3, designated Critchfield Canyon, appears on Segment 14 as Tract 1451 with access from Critchfield Road. It is an isolated tract but is still Government-owned.

d. Site No. 4, designated Asotin Quarry Site, appear on Segment 16 as Tract 1634. It is still Government-owned. Similar to the Silcott site, this quarry was also reported excess as a result of a previous Executive Order Utilization Survey. However, the property was withdrawn from excess and returned to out custody and control for continuing requirements.

e. Site No, 5, designated Tammany Creek, appears on Segment 13 as Tracts 1336 and 1337. It is still Government-owned and was used recently to process and stockpile material for the reservoir drawdown.

f. Site No. 6, designated Impervious Gravel Stockpile Area and lying near the left abutment of the Memorial Bridge appear on Segment 18 as Tract 1830-2. It is a small tract of 0.07 acres.

g. Site No. 7, appear on Segment 5 as Tract 550. This site is no longer owned by the Government. It was disposed and sold in 1980. Our records show that it had been used as a stockpile area during the construction of the Lewiston Levees. When that purposes had been satisfied it was excess to our needs.

2. The above information was gathered by Mr. Steven Gale by researching real estate maps and disposal records. Please contact him for any clarification or additional information.

The remainder of Appendix J is oversized plates containing real estate segments. Please refer to the original document for these plates.